

**Freeman Lake Park
Office Building
And
American Legion Park
Golf House**



**CITY OF ELIZABETHTOWN
ELIZABETHTOWN, KY**

January 14, 2018

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January 14, 2018

ADVERTISEMENT FOR BIDS

Notice is hereby given that the City of Elizabethtown will receive sealed bids for the Freeman Lake Park Office Building and the American Legion Park Golf House at the office of the City Clerk, City Hall, 3rd floor, 200 West Dixie Avenue, P. O. Box 550, Elizabethtown, Kentucky 42702 until 10:00 AM local time on Thursday, February 8, 2018, at which time they will be publicly opened and read aloud. The bidder can bid on either project or on both as a combined bid. The successful bidder(s) shall provide performance and payment bonds, proof of insurance and licenses as specified. Plans, specifications, and bid forms may be obtained from Duplicator Sales & Service, located at 540 West Dixie Avenue, Elizabethtown, Kentucky 42701 (270-765-2553). Preference shall be given to Kentucky resident bidders and non-resident bidders from states which do not require preference to resident bidders. A \$125.00 non-refundable deposit will be required for each set of plans and bid documents for both projects; and a \$75.00 non-refundable deposit will be required for an individual set of plans and bid documents.

Any party interested in bidding on the project is invited to attend a pre-bid meeting on Tuesday, January 30, 2018, at 10:00 AM at City Hall, 2nd floor, Council Chambers.

The City of Elizabethtown reserves the right to reject any and all bids or to let the contract as a whole or for any part, and to waive any informalities or irregularities in the bids received.

/s/ Edna B. Berger, Mayor

Attest: Mary Chaudoin, City Clerk

INSTRUCTIONS TO BIDDERS

1.1 General Instructions

- A. Each Bidder is responsible for inspecting the work site and for being thoroughly familiar with the Contract Documents. The Bidder shall in no way be relieved from any bidding obligation because of unfamiliarity with the site or documents. The City will not assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- B. Each Bidder shall be required to pay a non-refundable deposit for a copy of construction plans and bid documents.
- C. All Bidders must comply with all Federal, State and City Equal Employment Opportunity laws and regulations which prohibit discrimination in employment regarding race, creed, color, sex, or national origin.
- D. Wherever the words "or equal" appear in the technical notes, they shall be interpreted to mean an item of materials or equipment equal in quality to that named and which is suited to the same use and capable of performing the same function for the same duration and the same standard of operation as that named. The burden of proof of equal quality or service shall be on the Bidder. Inclusion of a certain make or type of materials or equipment in Bidder's proposal or Contractor's estimate shall not obligate the City to accept such material or equipment if it does not meet the requirements of the contract plans or technical notes as determined by the City.
- E. All taxes are the responsibility of the successful bidder unless specifically exempted in the bidding documents.
- F. The City may elect to purchase construction materials directly from suppliers as specified by the contractor. The contractor shall include these items in their bid with all applicable sales tax. If items are purchased directly, the purchase price and corresponding sales tax shall be deducted from the contract by change order.

2.1 Bidding Procedure

- A. Bids will be received by the City of Elizabethtown, at the office of the City Clerk, until 10:00 A.M. on Thursday, February 8, 2018, and then publicly opened and read aloud.
- B. Bids must be submitted in a sealed envelope, addressed to the City of Elizabethtown, Attention: Scott Reynolds, P.O. 550, 200 West Dixie Avenue, Elizabethtown, Kentucky 42701. The Bidding envelope must be clearly marked on the outside as Freeman Lake Park Office Building and/or American Legion Park Golf House, and the envelope must bear on the outside the Bidder's name, address, Bid opening date, and time.
- C. Bids must be submitted on the required Bid form. All blank spaces for Bid prices

must be completed, in ink or typewritten, and the Bid form must be fully completed and executed when submitted.

- D. The bid shall be a lump sum bid for all materials, labor and equipment to construct the building as shown on the plans.
- E. The City reserves the right to add, delete, or change any part or portion of the proposed work. All such changes that affect the work shall be in the form of a Change Order that shall establish compensation. The Change Order shall be issued by the City and executed by the City and Contractor, under the conditions of the original contract.
- F. Interpretation of the meaning of the plans, specifications or other Bidding documents will not be made to any Bidder orally. Requests for interpretation must be in writing addressed to Scott Reynolds, Director of Facilities Management, City of Elizabethtown, 200 West Dixie Avenue, Elizabethtown, Kentucky 42701 at least seven (7) days prior to the fixed Bid opening date. Interpretations and supplemental instructions will be in the form of written addenda to the specifications which, if used, will be mailed to all prospective Bidders no later than four (4) days prior to the fixed Bid opening date. Failure of any Bidder to receive any such addendum or interpretation shall not relieve any Bidder from any obligation under the Bid submitted. All addenda so issued shall become part of the contract documents.

3.1 Award of Contract

- A. Award of the Contract will be made on the basis of the lowest and best evaluated Bid price including previous performance, references, and warranties provided. The City reserves the right to reject any and all Bids, to waive any Bidding informalities, and to disregard all nonconforming, nonresponsive, or conditional Bids. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum will be resolved in favor of the correct sum.
- B. The Bidder to whom the Contract is awarded will be required to execute the Contract and provide Insurance Certificates within seven (7) calendar days from the date of the Notice of Award. The Notice of Award will be accompanied by the necessary Contract.
- D. The successful Bidder must provide proof of a City of Elizabethtown business license at or before the signing of the Contract. The General Contractor and all subcontractors shall maintain a City of Elizabethtown business license and shall pay all applicable occupational taxes for all employees working on the project during this contract.
- E. Insurance certificates for all coverage required must be provided by a corporate insurer acceptable to the City. The term of all coverage must run until the contract completion date.
- F. Within ten (10) calendar days of receipt of acceptable Insurance Certificates and

Contract signed by the Bidder to whom the Contract was awarded, the City shall sign the Contract and return to such party an executed duplicate of the Contract. Should the City not execute the Contract within such a period, the Bidder may, by written notice, withdraw the signed Contract. Such notice of withdrawal shall be effective upon receipt of the notice by the City.

Special Project Conditions

1. Working hours shall be 8:00 am until 4:30 pm daily Monday thru Friday only, unless specifically approved by the owner.
2. The General Contractor shall provide a list of all employees of the General Contractor and all Subcontractors that will be working on this project prior to the start of construction for Criminal Background Checks. The background checks shall include any and all employees that are working on this project. The City reserves the right to restrict or deny access to any contracted employees.
3. All employees of the General Contractor and Subcontractors that are on site shall have a contractor badge visible at all times. The badge shall have the name of the employee, the company of the employee, and a photo of the employee. No employee shall be granted access to the site without a contractor badge
4. Alcohol, concealed weapons and all controlled substances shall be prohibited on the project. A designated area shall be established for tobacco use. There shall be no tobacco products of any kind used within the building after drywall is hung and/or finished products are installed.
5. The General Contractor shall be responsible for keeping a neat, clean work area. If the work area is not keep clean, the contractor shall be asked to stop construction and clean the work area.
6. This project shall have monthly coordination meetings with the owner. Meeting dates and times shall be coordinated prior to the start of construction.
7. All deliveries shall be handled by the contractor. The owner will not sign for, take into possession or be responsible for any deliveries at the project site.
8. The contractor shall be responsible for all safety in and around the jobsite and shall install perimeter fencing around the project site. All fencing shall be maintained by the contractor.
9. The City will contract all work for the Special Inspections as required by the Kentucky Building Code for the project. The General Contractor is required to coordinate all inspections as required with the inspections company. The General Contractor shall be responsible for any additional work that is required if they fail to notify the inspection company for required inspections.

BID FORM
Bidder's Proposal
FREEMAN LAKE OFFICE BUILDING
AMERICAN LEGION PARK GOLF HOUSE

Proposal of _____ (hereinafter called "Bidder"), organized and existing under the laws of the State of _____, doing business as _____, to the City of Elizabethtown, Kentucky (hereinafter called "City").

In compliance with the plans and specifications, Bidder hereby proposes to furnish all equipment, materials, and labor for the work required for the Freeman Lake Office Building and/or the American Legion Park Golf House in strict accordance with the Contract Documents, within the time set forth herein as follows:

Bid Item Number 1 – All work as indicated in the specifications and on the plans for the Freeman Lake Park Office Building for the following amount \$ _____
(_____)

Bid Item Number 2 – All work as indicated in the specifications and on the plans for the American Legion Park Golf House for the following amount \$ _____
(_____)

Bid Item Number 3 – All work as indicated in the specifications and on the plans for the Freeman Lake Park Office Building and the American Legion Golf House as a combined bid for both projects for the following amount \$ _____
(_____)

The above price shall include all labor, materials, construction staking, overhead, profit, insurance and other items necessary to complete the finished work. Changes shall be processed in accordance with the General Conditions.

Bidder hereby agrees to commence the work under this contract within ten (10) working days from the execution of the contract and to fully complete the project within two hundred forty (240) consecutive calendar days thereafter. Bidder further agrees to pay liquidated damages, as provided for by the General Conditions, and as specified in the Contract.

Accompanying this proposal is a certified check or standard Bid Bond in the sum of _____ dollars (\$ _____), five (5) percent of the bid amount. The Bidder, by submittal of this bid, agrees with the City that the amount of the bid security deposited with this bid fairly and reasonably represents the amount of damages the City will suffer due to the failure of the Bidder to successfully secure and enter into the Contract.

Bidder acknowledges receipt of the following addenda:

Bidder agrees that the City reserves the right to delete the whole or any part of the project from the contract.

Bidder understands that the City reserves the right to reject any and all bids and to waive any informalities in the bidding.

Bidder agrees that this bid shall be good and may not be withdrawn for a period of ninety (90) calendar days after the actual date of bid opening.

Within seven (7) calendar days after receiving written notice of the acceptance of this bid by the City, the Bidder will execute and deliver to the City three (3) copies of the contract and such other required contract documents.

BIDDER:

Signed By: _____

Title: _____

Address: _____

Phone: _____

Fax: _____

Email: _____

Date: _____

(Add supplementary pages if necessary)
PROPOSED LIST OF SUBCONTRACTORS
Freeman Lake Office Building

The Bidder shall provide a list of the proposed subcontractors for the branch of work as listed below. The list of subcontractors is subject to approval from the City of Elizabethtown. The Bidder shall not change any subcontractors listed below without approval from the City of Elizabethtown. The form shall be filled out completely. All work that is to be performed by the Bidder shall be marked as "Prime Contractor."

<u>Branch of Work</u>	<u>Company Name of Subcontractor</u>
General Trades	_____
Concrete	_____
Drywall	_____
Windows/Glazing	_____
Heavy Timber Construction	_____
Wood Trusses	_____
Roofing	_____
Stud Walls	_____
Stone Mason	_____
Painting	_____
Insulation	_____
Overhead Garage Doors	_____
Mechanical	_____
Electrical	_____
Plumbing	_____
EPSC Permits and Measures	_____

PROPOSED LIST OF SUBCONTRACTORS
American Legion Park Golf House

The Bidder shall provide a list of the proposed subcontractors for the branch of work as listed below. The list of subcontractors is subject to approval from the City of Elizabethtown. The Bidder shall not change any subcontractors listed below without approval from the City of Elizabethtown. The form shall be filled out completely. All work that is to be performed by the Bidder shall be marked as "Prime Contractor."

<u>Branch of Work</u>	<u>Company Name of Subcontractor</u>
General Trades	_____
Concrete	_____
Custom Decorative Concrete	_____
Drywall	_____
Windows/Glazing	_____
Heavy Timber Construction	_____
Metal Trusses	_____
Roofing	_____
Metal Studs	_____
Masonry	_____
Painting	_____
Insulation	_____
Mechanical	_____
Electrical	_____
Plumbing	_____
EPSC Permits and Measures	_____

PROPOSED MATERIAL SUPPLIERS
Freeman Lake Office Building

The Bidder shall provide a list of the proposed suppliers for the work as listed below. The list of suppliers is subject to approval from the City of Elizabethtown. The Bidder shall not change any suppliers listed below without approval from the City of Elizabethtown. The form shall be filled out completely and submitted with the bid.

<u>Material</u>	<u>Supplier of Material</u>
Concrete	_____
Rebar	_____
Roof System	_____
Heavy Timber	_____
Trusses	_____
Studs	_____
Drywall	_____
Insulation	_____
Masonry Stone	_____
Hardieboard	_____
Windows	_____
Paint	_____
Doors	_____
Door Hardware	_____
Toilet Partitions	_____
Toilet Accessories	_____
Overhead Garage Door	_____
Gutters	_____

PROPOSED MATERIAL SUPPLIERS
PAGE 2
Freeman Lake Office Building

HVAC Units _____

Exhaust Fans _____

Grilles, Registers, Diffusers _____

Plumbing Fixtures _____

Water Pipe _____

Pipe Insulation _____

Hot Water Heater _____

Waste and Vent Pipe _____

Gas Pipe _____

Light Fixtures _____

Panel Boards _____

Electrical Devices _____

PROPOSED MATERIAL SUPPLIERS
American Legion Park Golf House

The Bidder shall provide a list of the proposed suppliers for the work as listed below. The list of suppliers is subject to approval from the City of Elizabethtown. The Bidder shall not change any suppliers listed below without approval from the City of Elizabethtown. The form shall be filled out completely and submitted with the bid.

<u>Material</u>	<u>Supplier of Material</u>
Concrete	_____
Rebar	_____
Roof System	_____
Heavy Timber	_____
Trusses	_____
Studs	_____
Drywall	_____
Insulation	_____
Masonry Block	_____
Hardieboard	_____
Windows	_____
Paint	_____
Doors	_____
Door Hardware	_____
Toilet Partitions	_____
Toilet Accessories	_____
Gutters	_____

PROPOSED MATERIAL SUPPLIERS
PAGE 2
American Legion Park Golf House

HVAC Units	_____
Exhaust Fans	_____
Plumbing Fixtures	_____
Water Pipe	_____
Pipe Insulation	_____
Hot Water Heater	_____
Waste and Vent Pipe	_____
Light Fixtures	_____
Panel Boards	_____
Electrical Devices	_____

NOTICE OF AWARD

TO: _____

Project Description: Freeman Lake Park Office Building and/or
American Legion Park Golf House
 Elizabethtown, Kentucky

The City of Elizabethtown has considered the bid submitted by you for the above-described work in response to its Advertisement for Bids dated _____.

You are hereby notified that your bid has been accepted for constructing this project in the amount of _____.

You are required by the Instructions to Bidders to execute the Contract and furnish the required Contractor's Certificates of Insurance, and business license within seven (7) calendar days from the date of this notice to you.

If you fail to execute said Contract and to furnish said documents within seven (7) from the date of this Notice, the City will be entitled to consider all your rights arising out of the City's acceptance of your bid as forfeited. The City will be entitled to such other rights as granted by law.

You are required to return an acknowledged copy of this Notice of Award to the City of Elizabethtown, Attention: Scott Reynolds, Director of Facilities Management, 200 West Dixie Avenue, P. O. Box 550, Elizabethtown, KY 42702.

Dated this _____ day of _____, 2018.

CITY OF ELIZABETHTOWN, KENTUCKY

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged by _____, this the _____ day of _____, 2018.

By: _____

Title: _____

CONTRACT

THIS AGREEMENT, made this ___ day of _____, 20___, by and between the CITY OF ELIZABETHTOWN, KENTUCKY, herein after called "CITY" and Contractor Company, doing business as (a corporation, a partnership, or an individual as applicable), hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payment and agreements hereinafter mentioned:

The CONTRACTOR will commence and complete the Freeman Lake Park Office Building and/or American Legion Park Golf House in Elizabethtown, Kentucky, according to the contract documents associated with this project.

The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor, and other services necessary for the completion of the project described herein, in the manner and form as provided by the contract documents.

The CONTRACTOR will commence the WORK required by the contract documents within ten (10) calendar days after the date of this contract and will complete the same within two hundred forty (240) consecutive calendar days unless the period for completion is extended otherwise by the contract documents. The final date for completion of the project shall be _____, 2018.

The CONTRACTOR agrees to perform all of the WORK described in the contract documents and comply with the terms therein for the sum of _____ (\$ _____) as shown in the Bidder's Proposal.

The CONTRACTOR and CITY agree to the following contract terms:

1.1 Contract Documents

- A. The Advertisement for Bids, Instructions to Bidders, Bidder's Proposal, Addenda, Bid Bond, Notice of Award, Contract, Certificates of Insurance, Notice to Proceed, General Conditions, Change Orders, Waiver of Lien/Acknowledgement of Payment, Drawings, Technical Notes and Specifications shall all be binding on the Contractor, and shall be fully a part of the Contract as if thereto attached or therein repeated in words and figures.
- B. The Contractor shall inform the City of any discrepancies between the Plans and Specifications for the Project. The City reserves the right to rectify the discrepancies in the best interest of City and the public served by the City.

2.1 Definitions

- A. Whenever the word "City" is used, it shall be held to mean the City of Elizabethtown.
- B. The term "Contractor" shall mean that person, firm or corporation with whom an official contract is made by the City. Legal responsibility for all transactions shall rest with the "Contractor" whether the work to be performed with its own forces and/or by subcontractors of the "Contractor".
- C. The term "Subcontractor" as employed herein, includes only those having a direct contract with the Contractor, and it includes those providing materials and labor at the site.
- D. The term "Written Notice" as employed herein, shall be deemed to have been duly served, if 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 if delivered at site or sent by registered mail to the last business address known to him who gives the notice. Acknowledgement of the receipt of all written notices shall be provided to the City by the Contractor.
- E. The term "Work" includes labor or materials or both, equipment, transportation, or other facilities necessary to complete the contract.
- F. The term "Provide" as used throughout the specifications, shall mean furnish, install and pay for.

3.1 Indemnification

- A. The contractor, its successor or assigns, agrees to indemnify and hold harmless the City, its agents and employees for any and all claims, damages, losses and expenses which may arise as a result of the work performed under this contract. The contractor, its successors or assigns, shall be responsible for any and all costs or awards of damages associated with any claim for injury of any kind arising out of the work performed under this contract. The contractor, its successors or assigns, will be responsible for any attorney's fees and costs incurred by the City in the defense of any claim.

4.1 Insurance

- A. The Contractor will not be permitted to commence work until all insurance required by the documents is obtained and such insurance has been approved by the City, nor shall the Contractor allow any Subcontractor to

Bodily Injury Liability and
Property Damage Liability –
Combined Single Limit \$1,000,000 each occurrence

Property Damage Liability \$2,000,000 general aggregate

Comprehensive Automobile Liability

Bodily Injury Liability and
Property Damage Liability,
Combined Single Limit \$1,000,000 each accident

3. Builder's Risk Insurance: To include coverage for 100% of the insurable value of materials and accessories to be used in conjunction with the work for losses due to Fire, Explosion, Hail, Lightning, Vandalism, Malicious Mischief, Wind, Collapse, Riot, Aircraft, Smoke, Transportation and Extended Coverage for the benefit of the City, Contractor, and the Subcontractors as their interests may appear during the Contract Time and until the work is accepted by the City.
4. Additional insureds: City of Elizabethtown
5. The City shall not be obligated however to review such insurance certificates, policies and endorsements, or to advise the Contractor of any deficiencies in such documents, and such receipt shall not relieve the Contractor from or be deemed a waiver of the City's right to insist on strict fulfillment of the Contractor's obligations herein.
6. For payment of materials stored offsite above \$5,000.00, proof of insurance and photos must accompany payment requests.

5.1 Surety Requirements

- A. The contractor shall maintain a Performance Bond and a Payment Bond as an essential part of this contract. The Bonds shall be provided for the length of the project.
- B. The Performance Bond and Payment Bond forms shall be provided by the City and made a part of this contract.
- C. In lieu of the Performance and Payment Bond, the City will also accept an Irrevocable Letter of Credit from a FDIC insured bank in the full amount of the contract. The term of the Letter of Credit shall be for the length of the contract plus an additional one (1) year for warranty on all work performed. The Letter of Credit shall require a City signature to reduce or close the Letter of Credit.

6.1 Authority to Act

- A. The City shall assign personnel that have the right to modify, change, terminate, suspend, or sign any portion of the contract. Changes made by other personnel shall not be binding to this contract and the contractor shall indemnify the City from any changes that are not approved by the appropriate personnel for this Contract.
- B. The assigned City Personnel for this project shall be Scott Reynolds, Director of Facilities Management and/or his supervisors including the Mayor of Elizabethtown.

7.1 Notices

- A. All notices for this contract shall be made in writing. No verbal directives or changes shall be held enforceable. It is the Contractor's responsibility to ensure that all directives and changes are in writing prior to commencing work on the directives or changes.
- B. The use of electronic notifications is acceptable, but shall be followed in writing for official directives or changes.
- C. Any questions concerning the Contract, Plans, Specifications or other supplemental information shall be made on an official Request for Information (RFI) form that is provided as part of the specifications for this Contract. It is the Contractor's sole responsibility to keep a log of all Request for Information forms.
- D. An official Request for Proposal (RFP) form shall be used for the City to obtain pricing on potential changes from the Contractor. Request for Proposal's shall not be viewed as an official Authority to Act on said potential changes and no additional compensation shall be awarded to the Contractor if Work is commenced on a Request for Proposal. An official Change Order is the only document that allows additional compensation for Changes in Work to the Contract. It is the CM's sole responsibility to keep a log of all Request for Proposal forms.
- E. An official Change Order form shall be completed and signed prior to Work being commenced on the change to the Contract. The official Change Order form provided in the specifications shall be used for all changes to the Contract.

8.1 Commencement and Completion of Work

- A. The Contractor shall commence work by the date specified in the Notice to Proceed, and shall fully complete all work under the Contract within the number of days set out in the Contract. As set forth in the Contract, the work under the Contract will be subject to liquidated damages in the event the work is not completed within the Contract Time unless the City grants an extension in writing to the Contractor. The amount of liquidated damages shall in no event be considered as a penalty, but an amount agreed upon by the Contractor and the City for damages, losses, and other costs that will be sustained by the City, if the Contractor fails to complete the work within the specified time.

9.1 Contractor's Obligations

- A. The Contractor shall perform all work in a good workmanship like manner, and furnish all supplies and materials, machinery, equipment, facilities, and means, to perform and complete all the work required by this Contract according to the plan, specifications, regulations, manufacturer's requirements and standards of practice, within the time herein specified. The Contractor shall furnish, erect, maintain, and remove at the completion of the contract, all temporary plant as may be required during the construction period.
- B. The Contractor shall keep on site, during work progress, a competent supervisor and any necessary assistants, all satisfactory to the City. The supervisor shall not be changed except with the consent of the City unless the supervisor proves to be unsatisfactory to the Contractor and ceases to be in his employment. The supervisor shall represent the Contractor in his absence and all directions given to him shall be as binding as if given to the Contractor. Other directions shall be confirmed on written request in each case. The Contractor shall give sufficient supervision to the work, using his best skill and attention. If the Contractor, in the course of the work, finds any discrepancy between the drawings and the physical conditions of the locality or any errors or omissions in the drawings or in the layout as given by points and instruction, it shall be his duty to immediately inform the City, in writing, and the City shall promptly verify same. Any work done after such discovery, until authorized, will be done at the Contractor's risk.
- C. The Contractor shall be responsible for all lines, levels and measurements of all work executed under his contract. The contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from his failure to do so. The Contractor shall be prepared to guarantee to each of the subcontractors the dimensions they may require for the layout and fitting of their work to the surrounding work. It shall be the duty of the Contractor to keep his job policed and clean at all times. Rubbish and trash shall be cleaned out and removed daily and the premises kept in conditions satisfactory to the City.

- D. The Contractor providing materials and equipment shall be responsible for the proper and adequate storage of their materials and equipment.
- E. All branches of work shall be executed in strict compliance with all state and federal regulations and codes, and shall be in compliance with all national codes when same have jurisdiction. Reference to standards, codes, specifications, and regulations; refer to the latest edition of printing in effect at the date of issue shown in the document, unless another date is implied by the suffix number of the standard.
- F. The Contractor and all employed workmen shall conduct all operations in a clean and sanitary manner. The workmen shall use proper waste receptacles and leave the site whenever necessity arises. Portable toilet facilities shall be available from beginning day of work until work is completed, unless other sanitary arrangements are approved by the City.
- G. The contractor shall safeguard all necessary Stormwater protection requirements. The requirements shall be provided per the requirements of the Project's Approved Erosion Prevention and Sediment Control permit obtained from the City of Elizabethtown's Stormwater Department.

10.1 General Contract Warranty

- A. Neither the final certificate nor payment nor any provisions in the contract documents shall relieve the Contractor of responsibility for faulty materials, or workmanship and, unless otherwise specified, he shall remedy any defects due thereto and pay any damage to other work resulting there from, which shall appear within a period of one year from the date of final acceptance of the work by the City. The City shall give notice of observed defects with reasonable promptness. All questions arising under this article shall be subject to the provisions of the Dispute Resolution Clause of this contract.

11.1 Safety

- A. The Contractor shall take all necessary precautions and provide all necessary safeguards to prevent personal injury and property damage. The Contractor shall provide protection for all persons including, but not limited to his employees and employees of other contractors or subcontractors; members of the public; and employees, agents, and representatives of the City and regulatory agencies that may be on or about the Work. The Contractor shall provide protection for all public and private property including, but not limited to, structures, pipes, and utilities, above and below ground.
- B. The Contractor shall provide and maintain all necessary safety equipment

such as fences, barriers, signs, lights, walkways, guards and fire protection and shall take such other action as required to fulfill his obligation under this subsection.

- C. The Contractor shall comply with all Federal, State and City requirements for confined space entry. Notice is hereby given that the Contractor shall adhere to the City's Confined Space Entry Program.
- D. The Contractor shall indemnify and hold harmless the City and all City personnel from any and all safety issues, damages, or fines that may arise on the project.
- E. The Contractor shall provide to the City a written safety plan for the project. This plan shall include all required personal protection equipment that is to be worn on the project site. All persons entering the project site shall follow the written safety plan for the project.
- F. The Contractor shall follow all required sections of the Kentucky OSH Standards for the Construction Industry, Latest Edition, as base minimums for the safety on the project site.

12.1 Equal Employment Opportunity

- A. Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to race, color, religion, sex, or national origin. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
- B. Contractor will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this Contract so that such provisions will be binding upon each subcontractor, provided that the foregoing provisions shall apply to contracts or subcontracts of Contractor not relating to any work or services to the City.

13.1 Payment

- A. Payment to the Contractor will be made either in one (1) lump sum after the job has been completed and accepted by the City, or the Contractor may apply monthly for partial payment at various stages of construction.
- B. An amount equal to five percent (5%) of the value of the Work completed will

be retained by the City from each partial payment to secure completion of the Work. Final payment is contingent upon work being satisfactorily performed in complete accordance with the contract.

- D. The Contractor shall certify to the City that all bills for materials have been paid and that all subcontractors have been compensated for services. The following forms shall be signed and submitted before final payment is authorized: Contractor's Affidavit & Waiver of Lien and Subcontractor's Affidavit & Waiver of Lien.
- E. Final payment to the Contractor shall be made within thirty (30) days of acceptance of all work by the City and submission by contractor of Affidavit & Waiver of Lien/Acknowledgement of Payment Affidavit.

14.1 Changes

- A. The City reserves the right to make changes to the Contract. The City shall notify the Contractor in writing of any changes in the contracted work.
- B. Any alterations or modifications of the Work contracted for shall be made only by written agreement or change order between the City and the Contractor before any such alterations or modifications have begun. All changes shall only be administered on the official change order form as specified here within.

15.1 Liquidated Damages

- A. It is mutually agreed between the parties hereto that time is of the essence, and in the event the construction or the work is not completed within the time herein specified, that from the compensation otherwise to be paid to the Contractor, the City may retain the sum of five hundred (\$500.00) dollars per day for each day thereafter, Sundays and holidays included, for the time that the work remains uncompleted. The sum shall represent the actual damages which the City will have sustained per day by failure of the Contractor to complete the work within the time stipulated, and this sum is not a penalty, being the stipulated damage the City will have sustained in event of such default by the Contractor.
- B. The contractor shall be responsible for any claims made by the architect/engineer to the City, in an amount not to exceed of one hundred fifty (\$150.00) dollars per visit, caused due to delays by the contractor in completing the project as agreed. This amount will be in addition to the liquidated damages clause above. The architect/engineer shall provide documentation to the City that additional visits are required beyond any agreed contractual visits.

16.1 Inspection of Work

- A. The Work shall at all times be subject to inspection but such inspection shall not relieve the Contractor from any obligation to perform said Work in accordance with the technical notes thereof, as herein provided, and Work not done strictly in accordance with the contract documents shall be corrected and made good by the Contractor whenever so ordered by the City, without reference to any previous oversight or error in inspection.

17.1 Right to Terminate Contract for City's Convenience

- A. The City may terminate the Contract for its own convenience when it is determined that such termination will be in the best interest of the City of Elizabethtown. When it has been determined that a Contract should be terminated for the convenience of the City, the Contractor shall be compensated for all Work completed to that date.
- B. The Contractor shall have the burden of establishing the amount of compensation to which he believes himself to be entitled by the submission of completed and accurate cost data employed in submitting his bid or proposal for the Contract, and evidence of expenses paid or incurred in performance of the contract from the date of award through the date of termination for convenience. A fair and just settlement shall be negotiated if necessary and all settlements shall be subject to the Dispute Resolution clause of this Contract.

18.1 Right to Suspend Contract for City's Convenience

- A. The City reserves the right to suspend the Contract and halt all work for its own convenience when it is determined that the suspension will be in the best interest of the City of Elizabethtown.
- B. The City shall notify the Contractor on the number of days the Contract is suspended for and shall execute a Change Order to extend the Contract the number of days the Contract is suspended.
- C. The Contractor shall have the burden of establishing an amount of compensation to which he believes himself to be entitled due to the suspended Contract. A fair and just settlement shall be negotiated if necessary and all settlements shall be subject to the Dispute Resolution clause of this Contract.

19.1 Delays

- A. The contractor shall be responsible for the project being completed in a

timely manner. The City shall reserve the right to reject any and all claims of delay.

- B. The contractor has the sole responsibility to track and log any and all delays. The contractor shall provide a request for extension within two weeks of the delay. Any and all claims made after the two week period shall be rejected.
- C. All time delays encountered during the construction process caused by adverse weather conditions shall be determined utilizing the following methodology. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated weather delays in all-weather dependent activities.

Monthly Anticipated Adverse Weather Delay

Work Days Based on 5 Work Days per Week

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
11	8	6	6	5	4	5	4	4	4	4	6

Upon acknowledgement of the contract and continuing throughout the contract allotted time, the Contractor will record on the daily report, the occurrence of adverse weather and resultant impact to the normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent more the Contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather, be calculated chronologically for the first to last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated by in the chart above, the City will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with this contract.

20.1 Dispute Resolution

- A. Any disputes which may arise shall first be addressed by a mediator who shall be mutually agreed upon and retained by the parties. The parties shall equally divide any fees and costs for said mediation. If said dispute cannot be resolved through mediation, then the parties may proceed to the court having the appropriate jurisdiction to seek any necessary relief.

21.1 Equipment and Materials

- A. The use of second hand and/or salvaged materials will not be permitted unless specifically provided for in the specifications. Equipment shall be new when turned over to the City. Equipment shall be delivered to the job site in factory sealed containers which list the manufacturer's name, model number, and identification number.
- B. All equipment to be removed from existing structures and not specifically to be re-used shall remain the property of the City. Such equipment shall be stored on site or disposed of by the Contractor as directed by the City.

22.1 Subcontractors

- A. The contractor shall provide a list of all sub-contractors, material suppliers and consultants that will be utilized to complete the project. This list shall be submitted for review with the bidding documents. The subcontractors can not be changed unless permission from the City is obtained.

23.1 Governance

- A. The contract and obligations hereunder shall be governed in all respects by the laws of the Commonwealth of Kentucky.

This CONTRACT shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed or caused to be executed by their duly authorized officials, this CONTRACT in three (3) copies each of which shall be deemed an original on the date first written above.

(SEAL)

CITY OF ELIZABETHTOWN, KENTUCKY

ATTEST: _____

By: _____

Name: _____
(Please Type)

Name: _____
(Please Type)

Title: _____

Title: _____

(SEAL)

CONTRACTOR:

ATTEST: _____

By: _____

Name: _____
(Please Type)

Name: _____
(Please Type)

Title: _____

Title: _____

EXAMPLE PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

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

CONTRACTOR, and

(Name of Surety)

(Address of Surety)

hereinafter called SURETY, are held and firmly bound onto the CITY OF ELIZABETHTOWN, KENTUCKY (Name of Owner)

200 West Dixie Avenue, P.O. Box 550, Elizabethtown, Kentucky 42701
(Address of Owner)

hereinafter called CITY, in the total aggregate penal sum of _____ Dollars (\$ _____)

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

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR entered into a certain CONTRACT with the CITY, dated the _____ day of _____, 2018, a copy of which is hereto attached and made a part hereof for the:

Freeman Lake Park Office Building and/or
American Legion Park Golf House
Elizabethtown, Kentucky

NOW, THEREFORE, that the CONTRACTOR shall well, truly, and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said CONTRACT during the original term thereof, and any extensions thereof, which may be granted by the CITY with or without notice to the SURETY and during the one year

guaranty period, and that the CONTRACTOR shall satisfy all claims and demands that are incurred under such CONTRACT, and shall fully indemnify and save harmless the CITY from all costs and damages which it may suffer by reason of failure of CONTRACTOR to do so, and shall reimburse and repay the CITY all outlay expense which the CITY may incur in making good any default within 90 days of Notice by CITY. This obligation shall remain in effect until one year from final acceptance by CITY.

PROVIDED, FURTHER, that the said SURETY, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the CONTRACT to be performed thereunder or the TECHNICAL NOTES accompanying the same shall in any way affect its obligation to this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the TECHNICAL NOTES.

PROVIDED, FURTHER, that it is expressly agreed that the BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the CONTRACT not increasing the contract price more than 20 percent, so as to bind the CONTRACTOR and the SURETY to the full and faithful performance of the CONTRACT as so amended. The term "Amendment", whenever used in this BOND, and whether referring to this BOND, the CONTRACT or the CONTRACT DOCUMENTS shall include any alteration, addition, extension, or modification of any character whatsoever.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2018.

ATTEST:

Contractor Secretary

(SEAL)

Witness to Contractor

Address: _____

CONTRACTOR

By: _____

Address: _____

ATTEST:

Witness to SURETY

Address: _____

SURETY

By: _____
Attorney in Fact

Address: _____

EXAMPLE PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

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

and

(Name of Surety)

hereinafter called SURETY, are held and firmly bound onto

THE CITY OF ELIZABETHTOWN, KENTUCKY

200 WEST DIXIE AVENUE, P.O. Box 550, Elizabethtown, Kentucky 42701

hereinafter called CITY, and unto all persons, firms, and corporations who or which may furnish labor, or who furnish materials to perform as described under the CONTRACT and to their successors and assigns in the total aggregate penal sum of

_____ Dollars

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

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR entered into a certain CONTRACT with the CITY dated the _____ day of _____, 2018, a copy of which is hereto attached and made a part hereof for the:

Freeman Lake Park Office Building and/or
American Legion Park Golf House
Elizabethtown, KY

NOW THEREFORE, that the CONTRACTOR shall promptly make payment to all persons, firms, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such CONTRACT, and any authorized extensions or modifications thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and for all labor cost incurred in such WORK including that by

a SUBCONTRACTOR, and to any mechanic or materialman lienholder whether it acquires its lien by operation of State or Federal law; then this obligation shall then be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the SUBCONTRACTORS, and persons, firms, and corporations having a direct contract with the CONTRACTOR or its SUBCONTRACTORS, in addition to the CITY.

PROVIDED, FURTHER, that the said SURETY for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the CONTRACT or to the WORK to be performed thereunder or the TECHNICAL NOTES accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the WORK or to the TECHNICAL NOTES.

PROVIDED, FURTHER, that no suit or action shall be commenced hereunder by any claimant except CITY: (a) Unless claimant other than one having a direct contract with the CONTRACTOR, shall have given written notice to any two of the following: The CONTRACTOR, the CITY, or to the SURETY above named within one hundred eighty (180) 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 CONTRACTOR, CITY, 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 eighteen (18) months following the date of which CONTRACTOR ceased WORK on said CONTRACT, it being understood, however, that if any limitation embodied in the 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.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the CONTRACT not increasing the contract price more than 20 percent, so as to bind the CONTRACTOR and the SURETY to the full and faithful performance of the CONTRACTOR as so amended. The term "Amendment", whenever used in this BOND and whether referring to this BOND, the CONTRACT or the CONTRACT DOCUMENTS shall include any alteration, addition, extension or modification of any character whatsoever.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2018.

ATTEST:

Contractor Secretary

(SEAL)

Witness to Contractor

Address _____

ATTEST:

Witness to SURETY

Address: _____

CONTRACTOR

Address: _____

SURETY

By: _____
Attorney in Fact

Address: _____

CONTRACTOR'S AFFIDAVIT AND WAIVER OF LIEN
ACKNOWLEDGEMENT OF PAYMENT

_____, CONTRACTOR, having a Contract with the CITY OF ELIZABETHTOWN, KENTUCKY on the Freeman Lake Park Office Building and/or American Legion Park Golf House, dated _____, 2018, has performed WORK and/or furnished materials, equipment and/or machinery or has fabricated materials especially for the project, during the period from _____ to _____.

For and in consideration of \$ _____, being the total of payments hereby acknowledged, _____, CONTRACTOR, certifies that the cost and expense for all labor, payroll taxes, materials, equipment and/or machinery including but not limited to, all amounts owed to all subcontractors and providers of materials, incurred on or before _____, for the Freeman Lake Park Office Building and/or American Legion Park Golf House, have been paid in full.

_____, CONTRACTOR, hereby certifies that with this payment all monies due said CONTRACTOR have been paid in full to date.

_____, CONTRACTOR, hereby waives and releases all rights to liens and claims against the CITY and any surety for the payment of his CONTRACT from its inception through _____, and further states that no other person has any right to a lien or claim against the CITY on account of WORK performed or for material, equipment, and/or machinery, or for materials especially fabricated for the project.

_____ (name), being _____ (title) of _____ (contractor) hereby acknowledges the foregoing in full and certifies that this is a true and accurate statement.

CONTRACTOR

BY: _____

TITLE: _____

STATE OF KENTUCKY
COUNTY OF HARDIN

SUBSCRIBED, SWORN TO AND ACKNOWLEDGED before me by _____ of _____, on this the _____ day of _____, 2018.

Notary Public
My Commission Expires: _____

SUBCONTRACTOR'S AFFIDAVIT AND WAIVER OF LIEN
ACKNOWLEDGEMENT OF PAYMENT

_____, subcontractor, has performed work and/or furnished materials, equipment and/or machinery or has fabricated materials especially for the Freeman Lake Park Office Building and/or American Legion Park Golf House, during the period from _____ to _____.

_____, subcontractor does hereby certify that it have been paid in full for all said materials, equipment or services.

For and in consideration of \$_____, being the total amount due, _____, subcontractor, hereby releases and waives all rights to assert any claim or lien against the City of Elizabethtown, Kentucky, and any surety. The undersigned further states that he or she knows of no other person, firm or corporation that has any right to any claim or lien against the City of Elizabethtown, Kentucky, due to work performed or material, equipment and/or machinery supplied concerning this project.

_____ (name), being _____ (title) of _____ (subcontractor), hereby acknowledges the foregoing in full and certifies that this is a true and accurate statement.

SUBCONTRACTOR

BY: _____

TITLE: _____

STATE OF KENTUCKY
COUNTY OF HARDIN

SUBSCRIBED, SWORN TO AND ACKNOWLEDGED before me by _____ of _____, on this the _____ day of _____, 2018.

NOTARY PUBLIC

My Commission Expires: _____

**CITY OF ELIZABETHTOWN
CHANGE ORDER**

Date: _____ Number: _____

Project: _____

Design Professional: _____

Contractor: _____

You are directed to make the following changes in the Contract Documents:

Description\Purpose: _____

Change Order Cost (Credit): _____

Change in Contract Time: _____

RECOMMENDED BY: _____
Design Professional

APPROVED and AUTHORIZED BY: _____
Authorized City Official

AGREED BY: _____
Contractor

Request for Information/Proposal

RFI No.: _____

RFP No.: _____

Project Name: _____

Contractor: _____

Name: _____

Specification Number/Drawing Number: _____

Date Information Requested: _____ Date Response Needed: _____

DESCRIPTION OF INFORMATION REQUIRED:

RESPONSE:

Proposal

No Change in Cost or Time

Decrease in Cost \$ _____

Decrease in Time of _____ days

Increase in Cost \$ _____

Increase in Time of _____ days

Owner/Engineer Receipt Date: _____ Contractor Receipt Date: _____

SECTION 01560 – ENVIRONMENTAL PROTECTION

1.1 GENERAL

- A. The Contractor shall perform all work in such manner as to minimize the pollution of air, water, or land, and shall, within reasonable limits, control noise and the disposal of solid waste materials, as well as other pollutants.

2.1 PROTECTION OF LAND AREAS

- A. Except for any work on storage areas and access routes specifically assigned for the use of the Contractor under this contract, the land areas outside the limits of permanent work performed under this contract shall be preserved in their present condition. Contractor shall confine his construction activities to areas defined for work on the plans or specifically assigned for his use. Storage and related areas and access routes required temporarily by the Contractor in the performance of the work will be assigned by the Engineer. No other areas shall be used by the Contractor without written consent of the owner.

3.1 PROTECTION OF TREES AND SHRUBS

- A. The Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without special authority. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage.

4.1 PROTECTION OF WATER RESOURCES

- A. The Contractor shall control the disposal of fuels, oils, bitumens, calcium chloride, acids, or harmful materials, both on and off the job site, and shall comply with applicable Federal, State, County, and Municipal laws concerning pollution of rivers and streams while performing work under this contract. Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, herbicides, and insecticides from entering public waters. Water used in on-site material processing, concrete curing, foundation, concrete cleanup, and other waste waters shall not be allowed to re-enter a stream if an increase in the turbidity of the stream could result therefrom.

5.1 WASTE DISPOSAL

- A. If any waste material is dumped in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed areas. Where directed, contaminated ground shall be excavated, disposed of as approved, and replaced with suitable fill material, all at no expense to the owner.

6.1 DUST CONTROL

- A. The Contractor shall keep all work free from excess dust to such reasonable degree as to avoid causing a hazard or nuisance to others. Approved temporary methods consisting of

sprinkling, chemical treatment, or similar methods will be permitted to control dust. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

7.1 SILTATION CONTROL

- A. Control of sediment will be practiced throughout the construction period. Follow the "Guidelines for Erosion Control and Sediment Control Planning and Implementation", ERA-R2-72-015 Office of Research and Monitoring U.S.E.P.A.
- B. Contractor is responsible for permitting, installing, and maintaining all Erosion Prevention and Sediment Control (E.P.S.C.) devices as required by the City of Elizabethtown's Stormwater Department. A permit must be obtained prior to commencement of any and all work.

8.1 POST-CONSTRUCTION CLEANUP OR OBLITERATION

- A. The Contractor shall obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed areas shall be graded and filled and the entire area seeded.

END OF SECTION 01560

SECTION 02230 - SITE CLEARING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Protecting existing trees and vegetation to remain.
 - 2. Removing trees and other vegetation.
 - 3. Clearing and grubbing.
 - 4. Topsoil stripping.
 - 5. Removing above-grade site improvements.
- B. Related Sections include the following:
 - 1. Division 2 Section "Earthwork" for soil materials, excavating, backfilling, and site grading.
 - 2. Division 2 Section "Landscaping" for finish grading, including placing and preparing topsoil for lawns and planting.

1.3 DEFINITIONS

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; and free of weeds, roots, and other deleterious materials.

1.4 MATERIALS OWNERSHIP

- A. Except for materials indicated to be stockpiled or to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from the site.

1.5 SUBMITTALS

- A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as

damage caused by site clearing.

1.6 QUALITY ASSURANCE

- A. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.7 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

- A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 2 Section "Earthwork."
 - 1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Locate and clearly flag trees and vegetation to remain.
- D. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TREE PROTECTION

- A. Erect and maintain a temporary fence around drip line of individual trees or around perimeter drip line of groups of trees to remain. Remove fence when construction is complete.
 - 1. Do not store construction materials, debris, or excavated material within drip line of remaining trees.
 - 2. Do not permit vehicles, equipment, or foot traffic within drip line of remaining trees.
- B. Do not excavate within drip line of trees, unless otherwise indicated.

3.3 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.
 - 1. Do not remove trees, shrubs, and other vegetation indicated to remain.
 - 2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
 - 3. Completely remove stumps, roots, obstructions, and debris extending to a depth of 18 inches (450 mm) below exposed subgrade.
 - 4. Use only hand methods for grubbing within drip line of remaining trees.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding 8-inch (200-mm) loose depth, and compact each layer to a density equal to adjacent original ground.

3.4 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
 - 1. Strip surface soil of unsuitable topsoil, including trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Limit height of topsoil stockpiles to 72 inches (1800 mm).
 - 2. Do not stockpile topsoil within drip line of remaining trees.

3. Dispose of excess topsoil as specified for waste material disposal.
4. Stockpile surplus topsoil and allow for re-spreading deeper topsoil.

3.5 SITE IMPROVEMENTS

A.Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

B.Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1.Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.

3.6 DISPOSAL

A.Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 02230

SECTION 02231 – CRUSHED STONE

1.1 SCOPE

- A. The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, and materials and in performing all operations in connection with the placement of crushed stone.

2.1 FINE AND COARSE AGGREGATES

- A. All aggregates shall meet the following requirements unless otherwise noted.
 - 1. Fine aggregate shall include natural sand, crushed sand and conglomerate sand. Natural sand shall consist of fine granular material resulting from the gradual deterioration of rock. Crushed sand shall consist of fine granular material resulting from crushing of stone, gravel or slag. Conglomerate sand shall consist primarily of natural materials which have been processed to the desired sizes without crushing. However, conglomerate sand may include some material which has been produced by crushing larger pieces of the natural materials.
 - 2. Fine aggregate (sands) shall meet the applicable requirements for Portland Cement Concrete covered under Section 804, Kentucky Transportation Cabinet Department of Highways Standard Specifications for Road and Bridge Construction Latest Edition.
 - 3. Gradation shall conform to the following table taken from the above specifications:

Sieve Size	Percent Passing
3/8 inch	100
No. 4	90 - 100
No. 16	45 - 80
No. 50	5 - 25
No. 100	0 - 8

- B. Coarse Aggregates

- 1. Coarse aggregates shall be crushed stone or slag, crushed or uncrushed gravel and lightweight aggregates when permitted and shall meet the applicable requirements for the intended use as covered in Section 805 of the above Kentucky Transportation Cabinet Department of Highways specifications.
- 2. Crushed slag shall be air—cooled blast—furnace slag as defined in ASTM C 125-74, “The material resulting from solidification of molten blast—furnace slag under atmospheric conditions. Subsequent cooling may be accelerated by application of water to the solidified surface.”

3. Coarse aggregate gradations when indicated by number size in these Specifications or on the drawings shall conform to Table I listed in Section 805 of the Kentucky Transportation Cabinet Department of Highways Specifications.

C. Pipe Bedding

1. For bedding aggregates, refer to detail sheets on the contract drawings.

D. Roads and Parking Areas or Their Bases

1. Dense Graded Aggregate (DGA) and KDOT No. 3's shall be used for streets, driving lanes and parking areas as illustrated on the contract drawings.

E. Walkways or Their Bases

1. Coarse aggregate for walkways or walkway bases under paving shall be No. 68 or No. 78.

F. Temporary Walkway and Roadway Surfacing Over Trenches

1. Dense Graded Aggregate (DGA) shall be used for temporary walkway and roadway surfacing over trenches for pipelines and conduits.

G. Permanent Traffic Bound Surfacing Over Trenches

1. Dense Graded Aggregate (DGA) shall be used for permanent traffic bound surfacing over trenches for pipelines and conduits when paving is not required.

H. Permanent Traffic Bound Roadway Surface Maintenance

1. No. 610 traffic bound aggregate shall be used on streets and roads requiring overall surface maintenance unless otherwise specified or noted on Drawings.

END OF SECTION 02231

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses, and exterior plants.
2. Drainage course for slabs-on-grade.
3. Subbase course for concrete walks and pavements.
4. Subbase and base course for asphalt paving.
5. Excavating and backfilling for utility trenches.

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

F. Fill: Soil materials used to raise existing grades.

- G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- H. Subbase Course: Course placed between the subgrade and base course for sidewalks, or course placed between the subgrade and a cement concrete pavement or asphalt pavement or a cement concrete or hot-mix asphalt walk.
- I. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- J. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by the Engineering Department and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials, at Contractors expense, when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, SM, and CL or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.
 - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

- F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- H. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing."
- C. Protect and maintain erosion and sedimentation controls, which are specified in Division 2 Section "Site Clearing," during earthwork operations.

3.2 EXCAVATION

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials, at Contractors expense.

3.3 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
 - 1. Clearance: 12 inches each side of pipe or conduit.
- C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
 - 1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material, 4 inches deeper elsewhere, to allow for bedding course.

3.4 SUBGRADE INSPECTION

- A. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

3.5 STORAGE OF SOIL MATERIALS

- A. Stockpile borrows soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.6 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 3 Section "Cast-in-Place Concrete."
- D. Provide 4-inch-thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or

conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase.

- E. Place and compact initial backfill of subbase material, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.
 - 1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
- F. Place and compact final backfill of satisfactory soil to final subgrade elevation.
- G. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.7 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under grass and planted areas, use satisfactory soil material.
 - 2. Under walks and pavements, use satisfactory soil material.
 - 3. Under steps and ramps, use engineered fill.
 - 4. Under building slabs, use engineered fill.
 - 5. Under footings and foundations, use engineered fill.

3.8 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.9 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
 - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
 - 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
 - 3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
 - 4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.10 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

3.11 SUBBASE AND BASE COURSES

- A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

3.12 DRAINAGE COURSE

- A. Place drainage course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:
 - 1. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
 - 2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.13 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

- C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.
- D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.14 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02300

SECTION 02656 - POTABLE AND FIRE WATER SYSTEMS

1.1. SCOPE

- A. The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, supplies and materials and in performing all operations in connection with the construction of potable and fire water systems and accessories in accordance with the drawings and specification.

2.1. COPPER PIPE AND FITTINGS

- A. Small piping (2-1/2" and smaller) placed underground shall be AWWA C800 Type "K" copper and use flared fittings.

2.2. GATE VALVES

- A. Gate valves shall be of two types, namely, iron body, bronze mounted, double disc, parallel seat gate valves 2 inch through 48 inch NPS, and iron body, bronze mounted, resilient—seated gate valves 3 inch through 12 inch NPS.
 - 1. Iron Body, Bronze Mounted, Double Disc Parallel Seat Gate Valves (AWWA Type)
 - a. These valves shall meet or exceed all applicable provision of ANSI/AWWA Specification C500—80.
 - b. All underground valves shall be NRS and housed in cast iron valve boxes. Valve boxes shall be telescope type, without screw and of suitable size for covering glands and bonnets of valves and with lengths necessary for each location.
 - c. All underground valves which have nuts deeper than 48 inches below tops of valve boxes shall have extended stems with operating nuts within 12 inches of valve box cap.
 - 2. Iron Body Bronze Mounted Gate Valves Under 3 Inch Size
 - a. Iron body gate valves shall be used on buried water lines. The valves shall be housed in valve boxes the same as specified for other size gate valves. The gate valves shall be double disc parallel seat gate valves with bronze discs and wedges. The valves shall be AWWA type, meeting all applicable requirements as specified for iron body bronze mounted double disc parallel seat gate valves.
 - 3. Iron Body Bronze Mounted Resilient—Seated Gate Valves
 - a. Resilient—seat gate valves shall be iron body, bronze mounted with resilient seats. They may be non-rising stem (NRS) or rising stem (O 5 & Y), in sizes 3, 4, 6, 8, 10 and 12 inch NPS. They shall be designed for 200 psi working water pressure.
 - b. Resilient—seat gate valves shall have a clear and unobstructed water

way, without pockets or ridges in the bottom seating area of the valve body. When fully open the water way shall be at least as large as the pipe in which it is to be installed.

- c. All underground resilient-seat gate valves shall be NRS and housed in cast iron valve boxes. Valve boxes shall be of the telescope type, without screw, and of suitable size for covering valve gland and bonnet, and with lengths necessary for each location. On valves which have nuts deeper than 30 inches below tops of valve boxes, valves shall be provided with extension stems having operating nuts not greater than 12 inches below tops of valve box caps.

4. Valve Boxes - Slide Type for Iron Body Gate Valves

- a. Valve boxes for 2 inch thru 10 inch valves shall be the slide type, without screw, of sufficient length to allow for 20 to 30 inches of cover over the top of the pipe, Opelika Foundry Company No. 4908 for cast iron and Series 500, sliding type for plastic, or equal. The inner section shall have a minimum inside diameter of 5 1/4 inches with a hood type base that will cover the packing gland on a 2 inch thru 10 inch valve (minimum of 8 inches inside diameter). The base of the top section shall be flanged at least 1-1/4 inches. The caps shall be circular with a corrugated surface and have pick holes in the periphery and be marked "Water".

2.3 MISCELLANEOUS STOPS

A. Corporation Stops

- 1. Corporation stops to be used with threaded pipe where connected into ductile iron pipe, shall be brass ground joint type with AWWA CC or CS taper thread inlets and iron pipe thread outlets for threaded iron pipe. Stops shall be Mueller H-15000, H-15010, H-15020, Ford, or equal.
- 2. Corporation stops shall be factory tested to 200 psi to be compatible with the pipes in which they are installed.

2.4 TAPPING SLEEVES AND VALVES

- A. Tapping sleeves for connections to existing water lines shall be of the mechanical joint type, suitable for working pressures of 200 psi and shall be Mueller, M&H, or equal.
- B. Tapping valves shall be of the mechanical type suitable for working pressures of 200 psi and shall be Mueller, M&H, or equal and match existing in system.
- C. The Contractor shall locate existing mains and check outside diameters of prior to ordering sleeves and accessories. No additional payment will be allowed for machining pipe and/or accessories, if the proper size is not ordered.

2.6 STOPPER FITTINGS

- A. Stopper fittings shall be manufactured by Mueller or approved equal and suitable for the intended use.

3.1 TESTING WATER PIPELINES

- A. Testing of the water mains shall be accomplished in the manner as follows:
1. All water mains shall be hydrostatically tested to 250 percent of the normal system operating pressure or 150 percent of the rated working pressure of the pipe, whichever is less. Where practical, pipelines shall be tested between line valves or plugs in lengths of not more than 1500 feet.
 2. Contractor shall furnish a recording gauge and water meter for measuring water used during leakage test and recording pressure charts during duration of test. Recording pressure charts shall be turned over to the Engineer at conclusion of the tests. The pressure recording device shall be suitable for outside service with a range from 0-200 psig, 24 hour spring wound clock, designed for 9 inch charts, and shall be approved by the Engineer. For Contractor's information only, such pressure recording devices may be available from the Foxboro, Massachusetts, or Bristol Division of ACCO, Waterbury, Connecticut, or Weksler Instruments Corporation, Freeport, New York.
 3. The owner will provide initial water for testing and disinfecting the water mains. Should the first test fail to pass, all additional water required for subsequent tests shall be furnished at the Contractor's expense.

3.2. DISINFECTION OF WATER LINES

- A. The new potable water lines shall not be placed in service (either temporarily or permanently) until they have been thoroughly disinfected in accordance with the following requirements and to the satisfaction of the Engineering Department.
- B. After testing, a solution of hypochlorite using HTH or equal shall be introduced into the section of the line being disinfected sufficient to insure a chlorine dosage of at least 50 ppm in the main. While the solution is being applied, the water should be allowed to escape at the ends of the line until tests indicate that a dosage of at least 50 ppm has been obtained throughout the pipe. Open and close all valves and cocks while chlorinating agent in the piping system. The chlorinated water shall be allowed to remain in the pipe for 24 hours after which a residual of at least 25 ppm shall be obtained. The disinfection shall be repeated until 25 ppm is obtained after which time the main shall be thoroughly flushed until the residual chlorine content is not greater than 1.0 ppm, and then may be connected to the system.

4.1 CLEAN UP

- A. Upon completion of the installation of the water mains and appurtenances, the Contractor shall remove all debris and surplus construction materials resulting from the work. The Contractor shall grade the ground along each side of the pipe trenches in a uniform and neat manner, leaving the construction area in a shape as near as possible to the original ground line.

END OF SECTION 02656

SECTION 02666 – GRAVITY SEWER

1.1 GENERAL

A. The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, supplies and materials and in performing all operations in connection with the construction of sanitary sewer lines and accessories in accordance with the drawings and specification.

2.1 MATERIALS (GENERAL)

- A. All pipe and accessories supplied for use on the project shall be as specified herein. Where referenced specifications (ASTM, AWWA, etc.) are mentioned, these standards are deemed to be the minimum standard of quality of materials or methods to apply to this project.
- B. All pipe, fittings, and jointing materials shall be of one manufacturer unless different types are shown on the drawings or otherwise accepted by the Engineer. Where special fittings or joints are required, such as adapters for joining different pipe materials, they shall be accepted by the Engineer.
- C. Copies of the manufacturer's direction for handling and installing the particular pipe supplied and accepted by the Engineer shall be furnished to the Engineer at the first delivery of pipe to the project in numbers that will permit the Engineer to retain three copies. The manufacturer's instructions shall be strictly followed unless a conflict exists between the manufacturer's instruction and those contained herein. In such cases, the Engineer shall determine which methods are to be followed and no pipe shall be installed until the Contractor has received written instruction from the Engineer as to which procedure to follow.
- D. Where pipe enters manholes, the pipe manufacturer shall certify that their pipe is compatible with the watertight, flexible seal to be used at manhole openings.

3.1 SEWER PIPE

A. PVC (POLYVINYL-CHLORIDE) SEWER PIPE

Pipe

1. PVC pipe 4 inch through 15 inch diameter supplied for use on this project shall be type PSM Polyvinyl Chloride (PVC) Sewer Pipe as

specified per ASTM D 3034-81. PVC pipe 18 inch through 27-inch diameter shall be as specified in ASTM F 678-80.
2. The pipe shall be made of PVC plastic having a cell classification of 12454-B or 12454-C as defined in ASTM D 1784-81 and shall be

homogeneous throughout, free of cracks, holes, foreign inclusions or other defects. The pipe shall be uniform in color, wall thickness, density and other physical properties. The maximum laying length for all PVC pipe supplied shall be 13.0 + or – feet. Wall thickness shall be SDR-35 per ASTM D 3034-81 or wall thickness T-1 per ASTM F 679-80. Marking and identification of pipe shall be per ASTM D 3034-81 or ASTM F 679-80 as applicable.

B. Fittings

1. PVC fittings supplied for use on this project shall meet all physical and quality requirements as hereinbefore specified for PVC pipe. PVC fittings shall be those as manufactured by or supplied by the manufacturer of the pipe. PVC fittings for 4 inch through 15 inch diameter pipe shall meet the dimensional requirements of the tables as shown in ASTM D 3034-81 except that saddle type wyes or tee branches shall not be allowed for use on new sewer mains. Where 90 degree bends are used, they shall be the long radius type. PVC fittings for 15 inch through 27 inch diameter pipe shall conform to the requirements of ASTM F 679-80.

C. Joints

1. Joints for PVC pipe and fittings for sanitary sewer lines shall be the “Push-On-Type” composed of elastomeric ring gaskets compressed in the annular space between a bell end or socket and spigot end of the pipe. All surfaces of the bell, socket or spigot end of the pipe against which the ring gasket may bear shall be smooth, free of cracks or other imperfections that could adversely affect the sealing capacity of the joint.
2. Lubricant for use in assembling joint shall be supplied with the pipe or be of the specific manufacturer as recommended by the pipe manufacturer for use with the specified pipe supplied. The lubricant shall not cause deterioration of either the elastomeric ring gasket or pipe material.
3. Where PVC pipe and fittings are connected to piping of other materials, the manufacturers standard adapters or transition pieces shall be used.

4.1 INSTALLATION

- A. Before sewer pipe is placed in position in the trench, the bottom and sides of the trench shall be carefully prepared and any necessary bracing and sheeting installed as provided in these specifications.
- B. Water shall not be allowed to run or stand in the trench while pipe is being laid, before the joint has completely set, or before the trench has been backfilled. The Contractor shall not open up at any time more trench than his available pumping facilities are able to dewater.

- C. Trench bottoms found to be unsuitable for foundations after pipe laying operations have started shall be corrected and brought to exact line and grade with compacted crushed stone (K.D.O.T. #9) or as directed by the Engineer.
- D. Each piece of pipe and special fitting shall be carefully inspected before it is placed, and no defective pipe shall be laid in the trench. Pipe laying shall proceed up grade starting at the lower end of the grade and with the bells up grade.
- E. WYES and TEES. Wyes and tee branches shall be installed in the sanitary sewer lines so as to properly serve each lot facing or abutting on the street or alley in which the sewer is being laid, and at such other locations as may be designated by the Engineer. Such branches shall be closed with plugs adequately braced to withstand test pressure. All tees and wyes shall be adequately marked so that it may easily found prior to future excavation. Use a 6' metal fence post.
- F. As the work progresses, the interior of the pipe in place shall be thoroughly cleaned. On small pipe, a swab or drag shall be kept in the pipeline and pulled forward past each joint immediately after it has been made. After each section of pipe has been laid, it shall be carefully inspected and all earth, trash, rags, and other foreign matter removed from the interior.
- G. Backfilling shall be performed in the manner provided in these specifications.
- H. CROSSING ABOVE WATER LINES. Where sewers cross above water lines, the sewer pipe for a distance of ten feet (10') each side of the crossing shall be encased in concrete.

5.1 CONNECTIONS

- A. Connections to all existing sewer lines, as shown on the plans or directed by the Engineer. Connections shall be made by removing a section of the sewer from the existing line and inserting in the space, a wye branch of proper size, or by construction of a manhole, junction box, regular chamber, or other structure as shown on the plans.
- B. Connections to existing manholes or inlets shall be made by core drilling a hole in the wall of existing structure, inserting a kor-n-seal boot into the hole in accordance with manufacturer's recommendation. As specified elsewhere, the bottom of the manholes shall be shaped or reshaped as necessary to fit the invert of the sewer pipe.
- C. JOINTING of DISSIMILAR PIPE. Jointing of dissimilar pipe shall be accomplished by using suitable, adapter couplings. Where adapter couplings are not available, the jointing shall be accomplished with a special fabricated coupling or concrete encasement block, as approved by the Engineer.

6.1 PIPE PROTECTION

- A. Pipe sewers, which when completed have less than 30 inches of cover, shall be provided with concrete protection as shown on the plans. Such pipe protection when not shown on the plans will be placed in accordance with the standard detail sheet, which is attached to the contract drawings.

7.1 EXISTING UTILITIES

- A. All existing sewer, water lines, gas lines, sidewalks, curbs, gutters, pavement, electric lines, or other utilities or structures in the vicinity of the work shall be carefully protected by the Contractor from damage at all times. Where it is necessary for the proper accomplishment of the work to repair, remove and/or replace any such utilities or structures, the work shall be done under the provisions set forth in the General Conditions of these contract documents. Any such work to be done at the Contractors expense shall be considered as incidental to the construction of pipe sewers and no additional payment therefore will be allowed.
- B. Water and gas service connections will be repaired or replaced by the Contractor at their expense as an incidental part of the work.
- C. Service or house connections to existing sewers that are damaged or removed shall be repaired or replaced by the Contractor at his own expense as an incidental part of the work.

8.1 CLEAN-UP

- A. After completing each section of the sewer line, (between manholes) the Contractor shall remove all debris and construction materials and equipment from that portion of the work, grade and smooth over the surface on both sides of the line and leave the entire area in a clean, neat, and serviceable condition.

END OF SECTION 02666

SECTION 02751 – CEMENT CONCRETE PAVEMENT, CONCRETE ENTRANCES, SIDEWALKS

1.1 GENERAL

- A. Submittals: In addition to Product Data, submit design mixes for each concrete pavement mix.
 - 1. Submit material certificates signed by manufacturers certifying that each concrete material complies with requirements.
- B. Quality Assurance: Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.
 - 1. Installer Qualifications: An experienced installer who has completed pavement work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
 - 2. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

2.1 PRODUCTS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.
- B. Steel Reinforcement Materials: As follows:
 - 1. Plain-Steel Welded Wire Fabric: ASTM A 185, flat sheets.
 - 2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
 - 3. Plain Steel Wire: ASTM A 82, as drawn.
 - 4. Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening steel reinforcement; manufactured according to CRSI's "Manual of Standard Practice"
- C. Concrete Materials: As follows:

Select portland cement alone or in combination with fly ash or ground granulated blast-furnace slag in subparagraphs below.

- 1. Portland Cement: ASTM C 150, Type I or II.
 - a. Fly Ash: ASTM C 618, Class F or C.
 - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- 2. Aggregate: ASTM C 33, uniformly graded, from a single source.
- 3. Water: ASTM C 94.

D. Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures, as follows:

1. Air-Entraining Admixture: ASTM C 260.
2. Water-Reducing Admixture: ASTM C 494, Type A.
3. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
4. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.
5. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

E. Curing Materials: As follows:

Select curing aids and materials from subparagraphs below, retaining optional materials if applicable.

1. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.
2. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
3. Water: Potable.

F. Related Materials: As follows:

1. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

G. Concrete Mixes: Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, with the following properties:

Revise properties below to suit Project.

1. Compressive Strength (28 Days): 3500 psi (24.1 MPa).
2. Maximum Water-Cementitious Materials Ratio: 0.50.
3. Slump Limit: 4 inches (100 mm).
4. Air Content: 4.5 to 7.5 percent.

H. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94.

3.1 EXECUTION

- A. Surface Preparation: Proof-roll prepared subbase, and remove loose material from surface.
- B. Forms: Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations.

- C. Reinforcement: Accurately position and support reinforcement, and secure against displacement. Set wire ties with ends directed into concrete.
 - 1. Install welded wire fabric in lengths as long as practicable; lap at least one full mesh, and lace splices with wire.
- D. Joints: Locate and install construction, isolation, contraction, and expansion joints as indicated.
- E. Concrete Placement: Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete. Place concrete in a continuous operation within planned joints or sections.
 - 1. Moisten subbase to provide a uniform dampened condition at time concrete is placed.
 - 2. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping according to recommendations in ACI 309R.
 - 3. Screed and initial-float concrete surfaces with darby or bull float before excess moisture or bleed water appears on the surface.
 - 4. Protect concrete from cold or hot weather during mixing, placing, and curing.
- F. Evaporation Retarder: Apply to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- G. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surfaces to true planes with gaps below 10-foot- (3-m-) long, unlevelled straightedge not to exceed 1/4 inch (6 mm). Cut down high spots, and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.

Select curing method from below.

- H. Curing: Begin curing after finishing concrete, but not before free water has disappeared from concrete surface. Cure concrete by one or a combination of the following methods:
 - 1. Moisture cure concrete by water, continuous fog spray, continuously wet absorptive cover, or by moisture-retaining-cover curing. Keep surfaces continuously moist for not less than seven days.
- I. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this Section.

- J. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.
- K. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 02751

SECTION 02666 – GRAVITY SEWER

1.1 GENERAL

All areas of the site that are disturbed by construction activities are to be planted in grass, except for areas indicated to receive sod as specified herein.

Submittals: In addition to Product Data for each type of product indicated, submit a planting schedule indicating anticipated planting dates.

Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.

Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory.

Lawn Maintenance: Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:

1. Seeded Lawns: 60 days from date of Substantial Completion.
2. Mow lawn as soon as top growth is tall enough to cut. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings.

1.2 PRODUCTS

A. Seed Species: State-certified seed of grass species, as follows:

1. Kentucky Bluegrass (*P. pratensis*)
 - a. Grass seed shall be harvested within one year prior to planting, free of weeds, to the limits allowable under applicable State seed laws. The seed shall be hulled and have a germination and purity that will produce a pure live-seed content of not less than 75 percent.

B. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 2 percent organic material content; free of stones 1 inch (25 mm) or larger in any dimension and other extraneous materials harmful to plant growth.

1. Topsoil Source: Reuse surface soil stockpiled on-site and supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Verify suitability of stockpiled surface soil to produce topsoil.

C. Soil Amendments:

1. Lime: ASTM C 602, Class T or O, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent.
2. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8.
3. Peat: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8.

D. Fertilizer:

1. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - a. Composition: 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight

E. Turfgrass Sod: Complying with TPI's "Specifications for Turfgrass Sod Materials" in its "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted.

F. Turfgrass Species: Sod of grass species as follows, with not less than 95% germination, not less than 85% pure seed, and not more than 5% weed seed:

1. Kentucky bluegrass (*Poa pratensis*), a minimum of three cultivars.

1.3 EXECUTION

A. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches (150 mm). Remove stones larger than 1-1/2 inches (38 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

1. Apply fertilizer directly to subgrade before loosening.
2. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.
3. Spread planting soil mix to a depth of 4 inches (100 mm) but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

B. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:

1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
2. Loosen surface soil to a depth of at least of 6 inches (150 mm). Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches (100 mm) of soil. Till soil to a homogeneous mixture of fine texture.
3. Remove stones larger than 1-1/2 inches (38 mm) in any dimension and sticks, roots, trash, and other extraneous matter.
4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.

C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch (13 mm) of finish elevation.

- D. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- E. Restore areas if eroded or otherwise disturbed after finish grading and before planting.
- F. Seeding: Sow seed at the rate of 3 to 4 lb/1000 sq. ft. (1.4 to 1.8 kg/92.9 sq. m)].
 - 1. Rake seed lightly into top 1/8 inch (3 mm) of topsoil, roll lightly, and water with fine spray.
 - 2. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre (42 kg/92.9 sq. m) to form a continuous blanket 1-1/2 inches (38 mm) in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
 - 3. Protect seeded areas from hot, dry weather or drying winds by applying peat mulch within 24 hours after completing seeding operations. Soak and scatter uniformly to a depth of 3/16 inch (4.8 mm) and roll to a smooth surface.
- G. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding [90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).
- H. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

END OF SECTION 02920

Potential Timber Frame Supplier List

The following list is a list of potential timber frame suppliers that have been used on previous projects and consulted for the structure on these two projects. Other suppliers can be used to complete the project.

Vermont Timber Works vermonttimberworks.com
Springfield, VT
Derek Folsom derek@vermonttimberworks.com
802-886-1917

Golden Eagle Log Homes goldeneaglehomes.com
Wisconsin Rapids, WI
Lukas Eichinger lukas.eichinger@goldeneagleloghomes.com
800-270-5025

Bensonwood Bensonwood.com
Walpole, NH
Dick Struthers dstruthers@benensonwood.com
603-756-3600, ext 157

Woodhouse Timber Frame Co. timberframe1.com
Mansfield, PA
Brian Giroux bgiroux@timberframe1.com
517-740-9717