



UNIVERSITY
OF KENTUCKY

Purchasing Division

CAPITAL CONSTRUCTION

Invitation for Bid

CCK-1952-14

Proposal Due Date – 4/30/2014

PROJECT 2393.0 South Campus Parking Lot

**Project 2393.0 South Campus Parking Lot
UNIVERSITY OF KENTUCKY
LEXINGTON, KENTUCKY**

INVITATION TO BID: CCK- 1952-14

Please note, no pre-bid will be held due to the shorten bid schedule.

OPENING: April 30, 2014
@ 3:00 P.M. LEXINGTON TIME

DATE ISSUED: April 16, 2014

UNIVERSITY OF KENTUCKY
CAPITAL CONSTRUCTION PROCUREMENT
Room #322 Peterson Service Building,
411 SOUTH LIMESTONE
LEXINGTON, KY 40506-0005

POST-BID CONFERENCE
TIME AND PLACE TO BE
ANNOUNCED AT BID OPENING

CONSULTANTS

BELL ENGINEERING
2480 FORTUNE DRIVE SUITE 350
LEXINGTON, KY 40509

CONTACT THE FOLLOWING INDIVIDUALS FOR MORE INFORMATION:

WENDY BROWN, CONTRACTING OFFICER,
UNIVERSITY OF KENTUCKY

859-257-5404
wendy.holland@uky.edu

KIETH INGRAM, PROJECT MANAGER
CPMD
UNIVERSITY OF KENTUCKY

859-257-5911
kingram@email.uky.edu

JIM BUCKLES
BELL ENGINEERING

859-278-5412
jbuckles@hkbell.com

METHOD OF AWARD

FINAL AWARD OF CONTRACT WILL BE MADE ON THE BASIS OF THE LOWEST, RESPONSIVE AND RESPONSIBLE BID, WHICH OFFERS THE BEST VALUE.

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ADVERTISEMENT FOR BIDS

1. INVITATION

Sealed proposals for the following work will be received by the University of Kentucky, Capital Construction Procurement Section, Room #322 Peterson Service Building, 411 South Limestone, Lexington, Kentucky 40506-0005, in the manner and on the date hereinafter specified for the furnishing of all labor, materials, supplies, tools, appliances, equipment, services, etc., necessary for the construction of **Project #2393.0 South Campus Parking Lot** as set forth in the specifications and as shown on the drawings as prepared by Sherman Carter Barnhart and approved by the UK CPMD Department and under the terms and conditions of this Invitation.

2. PROJECT DESCRIPTION

The work is located in Lexington, Kentucky on the University of Kentucky campus, near the E. S. Good Barn and Farm Road: Earthwork for the parking lot with underground detention basin; furnishing and installation of new storm sewer manholes; furnishing and installation of 30-inch and 18-inch storm sewers and accessories; landscaping; removal of existing storm sewers and accessories, all sizes; removal of overhead electrical lines and poles; installation of parking lot lighting, and accessories.

3. METHOD OF RECEIVING BIDS

Bids will be received from Prime Contractors on a Lump Sum Amount for the total project. All phases of the work shall be bid to and through the Prime Contractors. Bids shall be submitted in the manner herein described and on the official proposal form included with the conditions and specifications and shall be subject to all the conditions as set forth and described in the Bid Documents.

Bids shall be submitted only on the Official Forms supplied by the University of Kentucky, Capital Construction Procurement Section. Failure to comply with the foregoing requirements will be cause for invalidation of bid.

4. METHOD OF AWARD

Final award of Contract will be made on the basis of the lowest, responsive and responsible bid which offers the best value.

5. SCHEDULE OF PROJECT

The time for Substantial Completion (as further defined in Article 1 of the General Conditions) for the project shall be completed by August 15, 2014 and Final Completion for the project shall be 30 days thereafter. Plantings to be completed by November 20, 2014.

6. BONDING

All bids shall be accompanied by a bid guarantee of not less than five (5%) percent of the amount of the base bid. A 100% Performance Bond and 100% Payment Bond shall be furnished by the successful bidder. All bonding and insurance requirements are contained in the Instruction to Bidders, General Conditions and Special Conditions.

7. OBTAINING PLANS AND SPECIFICATIONS

Plans, Specifications and Official Bid documents are no longer available from the University of Kentucky, Capital Construction Procurement Division. The University and Lynn Imaging have an agreement for duplicating and distribution services for University construction projects. Plans, Specifications and Official Bid Documents are available from:

Lynn Imaging
Attn: Roni Lucas
328 Old Vine Street
Lexington Kentucky 40507
Phone (859) 255-1021
Fax (859) 233-1558

In addition, Lynn Imaging and the University have a web site at: www.ukplanroom.com where plans can be ordered.

Payments for Plans, Specifications and Official Bid Documents must be made to Lynn Imaging before a set of documents will be issued.

Notes: Contractors that receive plans and specifications from other sources than Lynn Imaging must request a "Form of Proposal" from the University's Purchasing Representative to be registered as plan holders and to receive addendums.

Potential Contractors must identify the position of their firm as a prime bidder, miscellaneous subcontractor, material supplier or other when ordering of picking up Plans and Specifications.

8. BID SUBMITTAL

Contractors must submit their bid in a sealed envelope in Room #322 Peterson Service Building, Lexington, Kentucky 40506-0005 and the envelope must contain the following information on the outside lower left-hand corner:

SEALED BID INVITATION NO. CCK-1952-14

BID DATE: April 30, 2014 at 3:00 P.M. LEXINGTON TIME

Bids, upon their receipt by the University of Kentucky, Capital Construction Procurement Section are stamped showing the hour and date received. Bids received after the scheduled closing time for reception of bids will not be considered provided legal and accepted bids have been received on said referenced Invitation.

9. BID WITHDRAWAL

No bidder may withdraw his bid for a period of sixty (60) days after the date set for the opening of bids. Clerical errors and omissions in the computation of the lump sum shall not be cause for withdrawal of the bid without forfeiture of bid bond. Bids may be withdrawn in person only, prior to the closing date for receipt of bids.

10. MINORITY BUSINESS ENTERPRISE PARTICIPATION

The University of Kentucky is committed to increasing the participation of minority business enterprises in construction and renovation projects, and encourages the use of minority subcontractors and material suppliers. All contractors should make an effort to locate and use minority business enterprises in bidding this project. For assistance in identifying minority vendors and subcontractors, the contractors

may contact: The Kentucky Procurement Assistance Program, 500 Mero Street, 23rd Floor , Frankfort, Kentucky 40601,(800-838-3266) email address CED.kpap@ky.gov,and/or The Office of Business & Occupational Development, Transportation Cabinet, 200 Mero Street, Suite 614, Frankfort, Ky. 40622, (502-564-3601) Attn: Mr. Melvin Bynes, email address Melvin.Bynes2@ky.gov

Bidders using minority enterprises as subcontractors and material suppliers are requested to identify these contractors in the space provided on the Form of Proposal. The successful contractor will be asked to supply associated contract amounts rounded to the nearest \$500.00 prior to the signing of a contract.

11. RIGHT TO REJECT

The University of Kentucky, Capital Construction Procurement Section, reserves the right to reject any and all bids and to waive all formalities and/or technicalities where the best interest of the University may be served.

12. GENERAL INFORMATION

A. The Listing of major subcontractors, unit prices, and material lists are to be submitted with the bid.

B. Only those Prime Contractors who have obtained Plans and Bid Documents from Lynn Imaging or a Form of Proposal directly from the University of Kentucky Purchasing Representative will be eligible to submit a bid for this project.

C. A prime bidder is to have a responsible authorized representative at the bid opening for post bid review of the apparent low bid that follows immediately after the opening and reading of the bids. Failure to comply with this requirement may be cause for rejection of bid.

13. WRITTEN QUESTIONS

Anyone wishing to discuss specific items is requested to submit the items in writing to Wendy H Brown **and** Suellen Bowling Capital Construction Procurement, no later than April 22, 2014. Written questions can be submitted by email to: wendy.holland@uky.edu and sbowlin@uky.edu.

Note: Responses to Written Questions received no later than April 22, 2014 will be provided in an addendum.

14. SUBSTITUTION - MATERIALS AND EQUIPMENT

Bidders wishing to submit a request for consideration of an alternate under the provisions of Article 48.3 of the General Conditions to the Contract to any article, device, equipment, product, material, fixture, patented process, form, method or type of construction, or by name, make, trade name, or catalog number shall submit a written request to the University at least 14 calendar days prior to the official bid date of the Project including all necessary information and sufficient detail to allow evaluation by the Consultant and the University and, if the University determines the alternate is acceptable, an addendum will be issued allowing the change and advising all bidders of the option.

If no addendum is issued to allow the requested change, the Bidder shall assume the request is not approved and shall prepare the bid on that basis.

15. POST BID MEETING

The apparent low bidder will be requested to meet with the Construction Manager to review the bid and scope of services. The time and place of this meeting will be announced at the bid opening.



Signed:

Wendy H Brown
Contracting Officer

A Complete list of these and other projects that are out for bid may be viewed on the World Wide Web at the following URL: <http://www.uky.edu/Purchasing/>

Instructions to Bidders

UNIVERSITY OF KENTUCKY
CAPITAL CONSTRUCTION PROCUREMENT SECTION
INSTRUCTION TO BIDDERS

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ARTICLE 1 - DEFINITIONS

Addenda are written or graphic instructions issued by the University of Kentucky prior to the execution of the contract which modify or interpret the bidding documents by addition, deletions, clarification, or corrections.

Alternate is an amount stated in the Bid Proposal to be added to or deducted from the amount of the base Bid if the corresponding change in project scope or materials or methods of construction described in the Bidding Documents is accepted. If the University designated Alternates are considered in the award, the Alternate(s) will be accepted in the sequence listed on the Bid form, and the lowest bid sum will be computed on the basis of the sum of the base bid and any Alternates accepted, within the budgeted amount.

Bid is the sum stated in the Bid Proposal for which the bidder offers to perform the work described in the specifications and detailed on the drawn plans.

Bidding Documents include the Notice to Contractors, Advertisement for Bids, Invitation to Bid, Instruction to Bidders, Bid Proposal forms, other sample bidding and contract forms and the proposed Contract Documents including General Conditions, Special Conditions, Plans and Specifications, any Addenda issued prior to receipt of Bids.

Bid Proposal is a complete and properly signed document, proposing to do the work or designated portion thereof for the sums stipulated therein supported by data called for by the Bidding Documents.

Consultant means the person or the entity, either Architect, Engineer or other Consultant, who is identified as such in the Contract Documents.

Construction Manager - Means the person or entity employed by the owner under a separate contract, to provide professional and managerial services to the project.

Foreign Corporation - refers to a corporation for profit, organized under the laws other than the laws of the Commonwealth of Kentucky.

KRS References - means the "Kentucky Revised Statutes" adopted by the Commonwealth of Kentucky including all laws and related regulatory that may have been revised, amended, supplemented or new laws enacted.

Bidder is one who submits a bid directly to the Purchasing Agency for the work described in the Bidding Documents.

Subcontractor is a subbidder who submits a bid to a Bidder for materials or labor for a portion of the work.

Owner is the University of Kentucky, a statutory body corporate existing pursuant to Sections 164.100 et seq. of the Kentucky Revised Statutes.

Purchasing Agency is the University of Kentucky, Capital Construction Procurement Section, Room 373 Peterson Service Building, Lexington, KY 40506-0005.

ARTICLE 1 - DEFINITIONS (Continued)

Purchasing Official is the University's authorized representative.

Responsible Bidder shall mean a person who has the capability in all respects to perform fully the contract requirements, and the integrity and reliability which will assure good faith performance. See KRS 45A.070(6).

Responsive Bidder shall mean a person who has submitted a Bid which conforms in all material respects to the Invitation for Bids, so that all bidders may stand on equal footing with respect to the method and timeliness of submission and as to the substance of any resulting contract. See KRS 45A.070(7).

Unit Price is an amount stated in the Bid as a price per unit of measurement for materials or services as described in the bidding documents.

ARTICLE 2 - BIDDER'S REPRESENTATIONS

The Bidder by submitting a Bid represents and warrants that:

- i) The Bidding Documents have been read and understood and the Bid is made in accordance therewith.
- ii) The site of the proposed work has been visited and carefully examined and the Bidder is aware of and understands the local conditions under which the work is to be performed.
- iii) The Bid submitted is premised upon furnishing the work required by the bidding documents without exception.
- iv) That the plans and specifications contained in the Bid Documents have been carefully examined and determined by the Bidder to be accurate as well as adequate and sufficient from which to submit a Bid and from which to perform the Work.

ARTICLE 3 - BIDDING DOCUMENTS

A. Availability of Bidding Documents. Bidders, Subbidders, Subcontractors, and others may obtain Bidding Documents from Lynn Imaging, in the manner and for the charge, if any, stated in the Advertisement or Invitation to Bid.

Complete sets of Bidding Documents shall be used in preparing Bids. The Purchasing Official assumes no responsibility for misinterpretations resulting from the use of incomplete sets of bidding documents.

The Purchasing Official, in making copies of the Bidding Documents available on the above terms, does so only for the purpose of obtaining Bids on the work and does not confer a license or grant for any other use.

B. Accuracy of Bid Documents. The Bidding Documents are complementary and are issued for the convenience of the Bidders. The University of Kentucky assumes no responsibility for the correctness of said documents. Each Bidder should review the documents for errors or inaccuracies that may affect the scope of work implied.

ARTICLE 3 - BIDDING DOCUMENTS (Continued)

All Bidders shall, upon examination of Bidding Documents promptly notify the University's Purchasing Official of any ambiguity, inconsistency or error that they may discover upon examination of the Bidding Documents and/or of the site and local conditions.

C. Questions, Interpretations. All questions regarding the meaning or interpretation of the Bidding Documents shall be directed in writing to the Purchasing Official. Questions received less than ten (10) calendar days prior to the date for receipt of Bids may not be answered.

Any interpretation, correction or change of the Bidding Documents will be made by Addendum, issued by the Purchasing Official. Interpretations, corrections or changes of the Bidding Documents made in any other manner will not be binding and Bidders shall not rely upon such interpretations, corrections and changes.

D. Materials, Equipment. The materials, products and equipment detailed, described or referenced to manufacturers' or vendors' names, trade names, catalogue numbers, etc., are intended to establish a standard of required function, dimension, appearance and quality. Material, article or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article or equipment so proposed is, in the sole opinion and judgment of the Consultant, of equal substance and function and approved by the Purchasing Official.

E. Addenda. Addenda will be mailed or delivered to all who are known by the Construction Procurement Division to have requested and were furnished Bidding Documents. Contractors that receive plans and specifications from other sources than Lynn Imaging must request a "Form of Proposal" from the University's Purchasing Representative to be registered as plan holders and to receive addendums.

Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

No Addenda of a material nature will be issued later than five (5) working days prior to the date for receipt of bids, except for postponing the date for receipt of bids or withdrawing the Invitation to Bid.

Each Bidder shall ascertain, prior to submitting his Bid, that he has received all Addenda issued by the Construction Procurement Division for the particular bid invitation. The Bidder shall acknowledge receipt of all Addenda in the Form of Proposal, or by separate letter to the Purchasing Official which is received at or prior to the hour and date specified for receipt for Bids.

It shall be the sole responsibility of the Bidder who receives the Addendum, to insure that all of the appropriate Subbidders and Sub-contractors are notified in respect to the information contained in the Addendum.

ARTICLE 4 - PRE-BID CONFERENCE

A pre-bid conference and tour of the project area will be held approximately ten (10) days prior to receipt of bids. (Actual date of Pre-Bid Conference will be stated in the Invitation to Bid.) All contractors wishing to bid on this project should have a representative attend this conference. Items discussed at the Pre-Bid Conference will become part of the contract, and any contractor who doesn't attend the Pre-Bid Conference will still be held responsible for all items discussed.

ARTICLE 5 - BIDDING PROCEDURES

A. Form of Proposal. Bids shall be submitted by Bidders who have received Bidding Documents from the Capital Construction Procurement Section thereby listed on the Official Bidder's list and on the Bid submittal shall be made on the proposal form (Form of Proposal) provided by the Purchasing Official, Construction Procurement Section.

i) Blanks. All blanks on the Form of Proposal shall be completed and all required support data shall be furnished.

ii) Sums. Where so indicated by the makeup of the Form of Proposal, sums shall be expressed in both words and figures, and in case of discrepancy between the two, the amount indicated by words shall govern.

iii) Modifications. Any interlineation, alteration, or erasure must be initialed in ink by the signer of the Bid or by an official designee of the signer of the Bid.

iv) Alternates. All alternates specifically called for by the Form of Proposal shall be bid. Voluntary alternate proposals or an alternate to a lump sum proposal will not be considered unless specifically permitted by the conditions of the Advertisement for Bids or the Invitation to Bid.

v) Qualifications. The Bidder shall make no additional stipulations on the Bid Proposal form or qualify the Bid in any other manner.

vi) Signatures. The Form of Proposal shall be signed by a person or persons legally authorized to bind the Bidder to a contract. The Form of Proposal shall include the legal name of Bidder and a statement indicating whether the Bidder is a sole proprietorship, a partnership, a corporation, or any other legal entity. A Bid by a corporation shall identify the state of incorporation including Federal I.D. number. A Bid submitted by an agent shall have a current signing authority attached certifying agent's authority to bind the Prime Bidder.

B. Bid Security. Where specified in the Advertisement or Invitation to Bid, the Bidder shall furnish a Bid guarantee in the required form of not less than five percent (5%) of the Bid amount. This Bid security secures the Bidder's promise (i) to enter into a contract on the terms stated in the Bid proposal, and (ii) if required, to furnish bonds covering the faithful performance of the contract and payment of all obligations thereunder. Should the Bidder refuse to enter into a contract or fail to furnish the required performance and payment bonds, the amount of the Bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

The Purchasing Official will retain the Bid security of Bidders until either (i) the contract has been executed and bonds have been furnished, or (ii) the specified time has elapsed so that Bids may be withdrawn, or (iii) all Bids have been rejected.

The completed University Official Bid Document, the Bid Security, and any support data required to be submitted with the Bid shall be enclosed in a sealed envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Bidder's name and address, the sealed Bid invitation number, closing date and hour. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof.

ARTICLE 5 - BIDDING PROCEDURES (Continued)

C. Timeliness of Bids. Bids shall be delivered to Room 322, Peterson Service Building, prior to the official time and date for receipt of Bids indicated in the advertisement of Invitation to Bid, or any extension thereof made by Addendum. The "official time" refers to the time as indicated by the time date clock located in the reception area of Room 322.

D. Late Bids. Bids received after the official closing time and date for receipt of Bids may be considered for evaluation and award only if: (i) no other Bids were received within the legal advertisement period; and (ii) the readvertisement time delay would seriously affect the operations of the Owner; and (iii) in the judgment of the Purchasing Official, the Bid was finalized prior to the official closing time and date for receipt of bids.

The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of bids.

E. Bids Not In Writing. Oral, telephonic, or telegraphic Bids or changes in Bids by such methods are not permitted and will not receive consideration.

F. Bids Withdrawn. Bids may be withdrawn prior to the closing time and date for receipt of Bids by: (1) a properly identified representative of the Bidder whose name appears on the Bid envelope, or (2) by written request by an authorized representative of the Bidder, received by the Capital Construction Procurement Section prior to the Bid closing date and time. Withdrawn Bids may be resubmitted up to the closing time designated for the receipt of Bids.

G. Bids Remain Open. During the stipulated time period following the time and date designated for the receipt of Bids a Bid shall remain open for the Owner's acceptance. During this period the Bid may not be modified, withdrawn or canceled by the Bidder, without the Bid security being subject to forfeiture and the suspension of the Bidder's future bidding privileges.

ARTICLE 6 - CONSIDERATION OF BIDS

A. Bid Opening. Unless stated otherwise in the Advertisement or Invitation to Bid, all properly identified timely Bids will be publicly opened, reviewed (for conformance with Bid submittal requirements) and if properly executed and complete, read aloud. All Bids opened and read will be listed on the official Bid tabulation which will be made available to all Bidders upon request.

B. Waiver of Irregularities/Rejection of Bids. The right to cancel the Invitation to Bid, to reject any and all Bids, and to waive technicalities and minor irregularities in Bids is maintained and preserved in all Invitations for Bids issued by University of Kentucky, Capital Construction Procurement Section when such action is determined to be in the best interest of the University of Kentucky.

ARTICLE 6 - CONSIDERATION OF BIDS (Continued)

C. Grounds for Rejection. Grounds for the rejection of Bids include, but shall not be limited to:

- i) Failure of a Bid to conform to the essential requirements of the Advertisement for Bids or Invitation for Bid.
- ii) Any bid which does not conform to the specifications contained or referenced in any Invitation for Bids shall be rejected unless the invitation authorized the submission of alternate Bids and the items offered as alternates meet the requirements specified in the invitation;
- iii) Any Bid which fails to conform to the delivery or completion schedule established in the Bidding Documents;
- iv) A Bid imposing conditions or qualifications which would modify the terms and conditions of the Invitation for Bids, or limit the Bidder's liability to the Owner in a manner inconsistent with the provisions of the Bidding Documents;
- v) Any Bid determined by the Purchasing in excess of funds available.
- vi) Failure to furnish a Bid security in accordance with the requirements of the Advertisement for Bids or Invitation to Bid.
- vii) For other cause as documented by the Purchasing Official pursuant to a written determination and finding.
- viii) Bids received from Bidders determined by the Purchasing Official to be non-responsive bidders.

D. Minor Irregularities. Minor irregularities or technicalities in a Bid may be waived by the Purchasing Official on behalf of the Owner when all of the following circumstances are present:

- i) The Purchasing Official determines that it will be in the Owner's best interest to do so; and the technicalities or irregularities are mere matters of form not affecting the material substance of a Bid;
- ii) Represent an immaterial deviation from, or variation in the precise requirements of the advertisement for, Bids or Invitation to Bid, and have no effect on price, quality, quantity or delivery of supplies or performance of services being procured; and, the correction or waiver of the technicality or irregularity will not affect the relative standing of, or prejudice, other Bidders. If the Owner does not waive technical deficiencies and irregularities, the deficient Bid shall be rejected.

E. Competitive Negotiation. The University reserves the right to exercise the provisions of KRS 45A.090 regarding competitive negotiation when it is considered to be in the best interest of the University.

It is the intent of the Purchasing Official to award a contract in due course and after a reasonable Bid evaluation period to the Responsive and Responsible Bidder offering the best value to the University, provided the acceptable Bid sum is within budgeted funds.

ARTICLE 6 - CONSIDERATION OF BIDS (Continued)

F. Rejection of Alternate Bids. The Owner reserves the right to accept or reject any or all alternate Bids if provided for in the Bid Documents. If alternates designated by the Owner are considered in the award, the alternate(s) will be accepted in the sequence in which they are listed on the Bid proposal form and the lowest Bid sum will be computed on the basis of the sum of the base Bid plus and/or minus any alternates accepted.

ARTICLE 7 - QUALIFICATION OF BIDDING CONTRACTOR

A. Bidder Responsibility. All bidders may be required to supply the information requested on the Contractor/Bidder Determination Of Responsibility Questionnaire. The apparent low Bidder will be supplied this document at the post Bid review of the Bid submittal document. The information required by this document must be completed by the Bidder and returned to the University Purchasing Official within a reasonable time as determined by the University. In most cases the information should be completed and returned in no more than five (5) working days after the Bid submittal. The information provided will be used to determine whether the Bidder is "responsible" as defined by KRS 45A.070(6), and verify that the Bidder has the experience, qualifications and resources required to provide the quality workmanship, materials and services necessary to complete the project being Bid. In addition to the information required by the Questionnaire, the Bidder agrees to provide any additional information that may be necessary for determination of contractor responsibility, as defined by the Kentucky Model Procurement Code. The determination of contractor responsibility will not be made until the Bidder has provided a sworn statement made under penalty of perjury that he has not knowingly violated any provision of the campaign laws of the Commonwealth and that the award of a contract to a Bidder or offeror will not violate any provision of the campaign finance laws of the Commonwealth. The sworn statement required is included in the Questionnaire to be completed by the apparent low Bidder.

B. Inquiries. The Purchasing Official shall have the right to make any inquiry deemed necessary to determine the ability of the Bidder to perform the work in a prompt and efficient manner and in accordance with the contract Documents. The failure of a Bidder to promptly supply information in connection with the Purchasing Official's inquiry may be grounds for a determination that such Bidder is nonresponsive.

C. Rejection. The right is reserved to reject any Bid where an investigation and evaluation of the Bidder's qualifications would give reasonable doubt that the Bidder could perform prompt and efficient completion of the work in accordance with the requirements with the Contract Documents.

ARTICLE 8 - SUBCONTRACTOR AND MATERIAL LISTING

A. List of Subcontractors. The Bidder will list the names of subcontractors proposed for each of the principal portions of the work (including those persons or entities who are to furnish material or equipment fabricated to a special design) in the designated place on the Form Of Proposal. The Bidder will be responsible for establishing to the satisfaction of the Purchasing Official, the reliability and responsibility of the listed subcontractors. The Bidder may be required by the Purchasing Official to provide additional information regarding listed subcontractors.

ARTICLE 8 - SUBCONTRACTOR AND MATERIAL LISTING (Continued)

B. Objection and Required Substitution. If, after due investigation, there is reasonable objection to the qualifications of a listed subcontractor the Bidder shall, upon written direction from the Purchasing Official, submit the name of an acceptable substitute subcontractor with no change in Bid price. The failure of the Bidder to promptly comply with this requirement may be grounds for rejection of the bid.

C. No Objection Prior to Notice of Award. Any listed subcontractor to whom the Purchasing Official does not make written objection prior to the giving of the Notice of Award shall be deemed acceptable to the Owner.

D. Bidder Self Performed Work. The Bidder shall not list himself as a subcontractor on the Form of Proposal Subcontractors List unless it can be demonstrated that Bidder actively participates in the trades required and has the expertise to complete that portion of the work.

E. Substitutions Not Optional. The Bidder shall not substitute a subcontractor named on the Form of Proposal without prior notification and approval of the Purchasing Official. Any notification for a substitution of a listed subcontractor shall be in writing and the reason fully set forth therein. The reason shall demonstrate real cause and evidence good faith by the Bidder. This shall not be construed to waive the Bidder's rights to later substitute a subcontractor for the failure of that proposed subcontractor to accept a contract from the Bidder, failure to perform in a satisfactory manner per the requirements of the contract or any other legal rights of the Bidder to manage and coordinate subcontractors.

F. Bid Documents Not a Contract. Nothing contained in the Bidding Documents shall be deemed to create a contractual relationship between the Owner and any subcontractor. However, it is the Bidder's responsibility to assure that the subcontractor listed has the required expertise and financial stability to complete that portion of the work.

G. List of Materials and Equipment. The Bidder shall submit a list of major materials and equipment by the manufacturer's name, brand and/or catalog number in the form and manner specified in the Bidding Documents.

H. Preliminary Acceptance of Materials and Equipment. Prior to the acceptance of a Bid, the Purchasing Official will make a preliminary review of the list of materials and equipment included with the Bid Proposal and advise the Bidder of the acceptance thereof, subject to satisfactory completion and approval of shop drawings, or direct other such action as may be necessary in order to meet the requirements of the Contract Documents. If any of the material or equipment named in the list are determined not to meet the requirements and standards of the specifications, the Bidder shall be required to furnish other material or equipment meeting the specifications at no change in Bid price. Preliminary review and acceptance of the submitted material and equipment list shall not relieve the Bidder from furnishing equipment and materials in complete accordance with the specifications, drawings, and Contract Documents.

ARTICLE 9 - UNIT PRICES

The Bidder shall submit with the Bid a list of Unit Prices as designated on Form of Proposal. Unit Prices are for the pricing of changes in the quantity from that indicated by the Contract drawings and specifications, where such changes have been authorized in writing by Owner. The Unit Prices submitted shall include all necessary labor, materials, equipment, appliances, supplies, overhead and profit. Only a single Unit Price shall be quoted for each designated item of work. The Unit Price shall be used to calculate price adjustments for either increasing or decreasing the amount of Work. Unit Prices shall apply to all phases of the Work whether the Work be performed by the Bidder or by the Bidder's (contractor) Subcontractor. The Owner reserves the right, prior to an award of Contract, to evaluate the Unit Prices submitted and adjust and/or reject any Unit Price that is determined by the Purchasing Official to be unreasonable in amount.

ARTICLE 10 - PERFORMANCE BOND, LABOR & MATERIAL PAYMENT BOND

The successful Contractor shall furnish security bonds (form to be furnished) in an amount equal to one hundred percent (100%) of the Contract Price as security for the performance of the Contract established and for payment of all persons performing labor, including payment of all unemployment contributions which become due and payable under Kentucky Unemployment Insurance Law, and furnishing materials, equipment, supplies, taxes, and other proper charges and expenses incurred or to be incurred in the performance of the contract. All bonds shall be executed by a surety company authorized to do business in the Commonwealth of Kentucky and the contract instrument must be countersigned by a duly licensed Kentucky resident agency representing the company. The bonds shall be valid after the final payment has been made on the Contract during the guaranty period and other periods limited only by statutes of limitation. If the furnishing of performance and payment bonds is required by the Bidding Documents, the bond premiums shall be paid by the Bidder. If the furnishing of bonds is not required by the Bid Documents, but required by the Purchasing Officer subsequent to the award of Contract, the successful Bidder shall procure the bonds and the Owner will reimburse the Bidder for the premium cost. The Owner reserves the right to require all bonds be provided by a surety company with a rating of "A" or better as listed in the A. M. Best-Key Rating Guide for Property and Casualty (current edition).

The Bidder shall execute the required performance and payment bonds for the Owner on the date of execution of the Contract Documents between the Owner and the Contractor, or, with the approval of the Purchasing Official, within ten (10) calendar days after that date. Unless otherwise specified in the Bidding Documents, the bonds shall be written on the bond form bound in the bidding documents and in the number of counterparts specified by the Purchasing Official.

Bonds shall be issued by a surety company authorized to underwrite bonds in the Commonwealth of Kentucky and be countersigned by licensed resident agent. The Bidder shall require the Attorney-in-Fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of their Power of Attorney. The date of the Power of Attorney shall not precede the date of the bonds.

ARTICLE 11 - AWARD OF CONTRACT

The issuance of an award of the Contract is contingent upon (i) securing an acceptable Bid that is responsive and from a responsible Bidder and is within the amount of budgeted funds and (ii) determining that the award of Contract will be in the best interest of the University of Kentucky.

ARTICLE 11 - AWARD OF CONTRACT (Continued)

Unless otherwise provided in the Bidding Documents, the Form of Agreement between the Owner and the Contractor will be written on the standard form of agreement bound with the Bidding Documents and executed in the number of counterparts specified by the Purchasing Officer.

The Contract between the University of Kentucky and the Contractor will be final and binding when the parties have executed the Agreement between the Owner and Contractor.

Final award of Contract will be made on the basis of the lowest, responsive and responsible bid which offers the best value.

The University reserves the right to negotiate and award Contracts as allowed under KRS 45A.090 should all responsive Bids exceed available funds.

ARTICLE 12 - PUBLIC WORKS ACT

A. Wage and Hour Acts. In performing the work, the Contractor and Subcontractors are required to comply with the wage and hour requirements prescribed by KRS 337.505- 337.550, except where the contract meets exemption requirements as set forth under KRS 337.010.

B. Payment. On projects not exempted under KRS 337.010, the Contractor and Subcontractor shall pay all laborers, workmen and mechanics performing work under this contract not less than the wages set fourth in the prevailing wage schedule, incorporated as part of the Bid and Contract Documents, as determined by the Kentucky Department of Labor in accordance with provisions of KRS 337.505 through KRS 337.550. On covered contracts, the Contractor and subcontractor shall pay all workers employed on the site not less than the minimum hourly rates set fourth in the Department of Labor Wage Determination, Incorporated in the Bidding Documents. The designated wage rates represent minimum allowable rates of pay and shall not be construed to mean that higher rates may not have to be paid in order to secure labor. Thus, differences between designated wage rates and actual wage rates shall not be an appropriate basis for adjustment of the contract sum.

C. Prevailing Wage Rates. The prevailing wage rates, set forth in the wage determination, are determined by the Kentucky Department of Labor in accordance with provisions contained in KRS 337.505 through KRS 337.550. Any Contractor or Subcontractor found to be in violation of any provisions of KRS 337.505 to 337.550 by the Commissioner of the Department of Labor and upon notification to the Senior Vice President for Administration and the Secretary of the Finance and Administration Cabinet, the Secretary of the Finance and Administration Cabinet shall declare the offending Contractor ineligible to bid on public works until such time the Contractor is in substantial compliance as determined by the Commissioner of Labor.

ARTICLE 13 - BASIC LEGAL REQUIREMENTS

A. Forms Required. An Authentication of Bid, Statement of Noncollusion and Nonconflict of Interest documents are bound with and included as part of the Form of Proposal. The Bidder is required to sign that document and submit it as part of the Bid. Failure to comply with these requirements shall invalidate the Bid.

ARTICLE 13 - BASIC LEGAL REQUIREMENTS (Continued)

B. Foreign Corporations. Foreign Corporations are defined as corporations that are organized under the laws other than the laws of the Commonwealth of Kentucky. Foreign Corporations doing business within the Commonwealth of Kentucky are required to be registered with the Secretary of State, New Capitol Building, Frankfort, Kentucky and must be in good standing.

The Foreign Corporate Bidder, if not registered with the Secretary of State at the time of the Bid submittal, shall be required to become registered and be declared in good standing prior to the issuance or receipt of a contract.

C. Domestic Corporations. Domestic corporations are required to be in good standing with the requirements and provisions of the Office of the Secretary of State.

ARTICLE 14 - TAXES

A. Not Tax-Exempt. Bidders are informed that construction contracts for the University of Kentucky are not exempt from the provisions of the Kentucky Sales and/or Use Tax. The Bidder shall include in the lump sum bid and the Contractor shall pay sales, consumer, use and similar taxes for materials, equipment and supplies incorporated into the Work unless otherwise specified in the Bid Documents.

The University of Kentucky, through the Commonwealth of Kentucky, is entitled to exemption from Federal Excise Tax. All Prime Bidders or Subbidders shall take this into consideration in their Bid.

B. Liability for Employee-Related Taxes. The Bidder and Subcontractors will be required to accept liability for payment of all payroll taxes or deductions required by local, state and federal law, including but not limited to old age pension, social security or annuities. Worker's Compensation Insurance shall be carried to the full amount as required by Kentucky Statutes. The Bidder shall be in full compliance with KRS Chapters 341 and 342.

ARTICLE 15 - PLANHOLDERS

A. Intent to Submit a Bid. A request for Bid Proposal and Bid Documents will be considered as intent to submit a Bid. The Bidder's name will appear on the planholder's list showing all planholders and will be forwarded all Addenda issued. In the event the planholder elects not to submit a Bid, it is requested that notification of such fact be furnished to the University of Kentucky, Capital Project Management, Capital Construction Section, on or before five (5) days prior to the closing date for receipt of Bids.

B. Planholder and Addenda Listing. The published planholder and Addenda listing is for general information purposes and the exclusion or inclusion of any firm in no way constitutes and/or implies approval or disapproval of the qualifications of any Bidder, Subcontractor, material or equipment supplier. If the Bidder or planholder notes nonreceipt of any of the listed Addenda, it shall be their responsibility to obtain missing copies from the Capital Project Management, Capital Construction Section or review same at any of the designated reporting agencies offering the Bid Documents for review.

ARTICLE 16 - POST BID REVIEW AND MATERIAL SUBMITTAL

The Bidder should have a responsible authorized representative at the bid opening. The Bidder's representative shall have the authority and be qualified to respond to questions that may arise about the Bidder's Bid submittal. The representative of the apparent low Bidder may be required to participate in the post Bid review of the apparent low Bid proposal, and if required by the Bid proposal, the completion and submittal of the material and equipment listing. The post Bid review will include representatives of the Consultant, representative of the apparent low Bidder and required University personnel. Preliminary review will be directed toward Subcontractor, material listing, Unit Prices, and qualifications of the Bidder. Failure to have a representative at the Bid opening may be cause for rejection of Bid.

ARTICLE 17 - EQUAL EMPLOYMENT, NONDISCRIMINATION, MINORITY AND WOMEN OWNED BUSINESS PARTICIPATION

A. Discrimination Prohibited. The University of Kentucky is committed to a policy of providing equal job opportunities on public contracts and prohibiting discrimination based on race, creed, color, sex, age, religion, national origin or disability in employment.

B. Use of Minority and Women Owned Business Enterprises. The utilization of minority and women owned business enterprises is encouraged in all construction and renovation projects at the University of Kentucky. All Contractors should make full efforts to locate and use minority and women owned business enterprises in the bidding of this project. For assistance in identifying minority and women vendors and subcontractors, the contractors may contact the Kentucky Office of Minority Business Enterprises, 2329 Capitol Plaza Tower, Frankfort, Kentucky 40601, Telephone No. (502)564-2064, The Office of Equal Opportunity, Contract Compliance, New Capital Annex Building, Frankfort, Ky. 40601, Louisville Minority Business Development Center, 835 W. Jefferson Street, Suite #205, Louisville, Kentucky 40202, Telephone No. (502)589-7401 and Louisville Minority Business Development Center, The Bennington Corporation, 611 West Main Street, Louisville, Kentucky 40202, Telephone No. (502)589-6232.

C. Equal Employment Opportunity. Bidders and subcontractors are required to comply with Federal Executive Order 11246 entitled "Equal Employment Opportunity" as amended.

The provisions of KRS 45.560 through 45.640, known as the Kentucky Equal Employment Act of 1978, hereinafter referred to as the Act, shall be binding upon the declared successful Bidder and any subsequent contract awarded to the Bidder, except that a Contractor or subcontractor otherwise subject to the provisions of KRS 45.570 is exempt as to any affirmative action or reporting requirements if:

- i) The contract or subcontract awarded is in the amount of \$250,000.00 or less, and the amount of the contract is not a subterfuge to avoid compliance with the provisions of this Act.
- ii) The contractor or subcontractor utilizes the services of fewer than eight (8) employees during the course of the contract.
- iii) The contractor or subcontractor employs only family members or relatives.
- iv) The contractor or subcontractor employs only persons having a direct ownership interest in the business, and such interest is not a subterfuge to avoid compliance with the provisions of this Act.

ARTICLE 17 - EQUAL EMPLOYMENT, NONDISCRIMINATION, MINORITY AND WOMEN OWNED BUSINESS PARTICIPATION (Continued)

All compliance reporting shall be directed to the University of Kentucky, Compliance Officer. It shall be the responsibility of the Contractor or subcontractor to comply with the provisions of KRS 45.560 through 45.640 unless exempted through the compliance officer.

D. Affirmative Action. The Bidder not otherwise exempted from the affirmative action or reporting requirements of the Act, shall within five (5) calendar days after being declared the successful low Bidder, submit to the University Official:

- i) A statement of intent to comply in full with all requirements of the Kentucky Equal Employment Act of 1978.
- ii) A breakdown of the Bidder's existing work force, within the Commonwealth of Kentucky, indicating the race, sex, age, position held, county and state of residence and date of employment of each employee.

The above reporting shall be on forms provided by the University of Kentucky Compliance Officer, and submitted in the manner prescribed on the forms.

E. Equal Opportunity Compliance. Within ten (10) days after the receipt of this report, the University Official, through its office of Equal Employment Opportunity, Contract Compliance, will determine whether the Bidder's work force is reflective of the percentage of available minorities in the areas from which the Bidder's employees are drawn. If a determination is made that the Bidder's work force is reflective of the percentage of available minorities in this drawn area, the Bidder shall be "certified" and be thereby qualified for the contract and to Bid on any contract covered by this Act without filing additional data for a period of six (6) months.

If it is determined by the Official that the Bidder's work force reflects an under utilization of minorities, the Bidder shall be so notified and no certification be granted. The Bidder shall then have the option of filing with the University of Kentucky an affirmative action plan, indicating goals and timetables for recruiting and hiring minorities throughout the contractor's work force. The Official shall be available, upon request of any contractor, to furnish technical assistance in fulfilling the requirements of the Act.

If the Bidder is subsequently awarded the Contract being sought, failure to comply with the goals and timetables set forth in the affirmative action plan shall be an unlawful practice under the Act and shall constitute a material breach of contract.

If the Official determines that the submitted affirmative action program does not fulfill the provisions of the Act, the Bidder shall be so notified and no certification shall be granted.

If the Bidder's work force is not reflective of the percentage of minorities in the drawing area and he has complied with all other affirmative action requirements in the Act, he may certify by verified affidavit that he has made every reasonable effort to comply with said percentage requirements and he shall thereafter be entitled to all benefits of the Act.

Failure to comply with the requirements of the Act after contract award, may result in payments being withheld pending satisfactory fulfillment of contractual obligations.

ARTICLE 18 - ANTI-KICK BACK

All Bidders shall comply with the Copeland "Anti-Kick Back" Act (18 USC 874) as supplemented in the Department of Labor Regulations (29 CFR, Part 3). This Act provides that each Bidder, subcontractor or subgrantee is prohibited from inducing, by any means, any person employed in the construction, completion or repair of public work to give up any part of the compensation to which he is otherwise entitled.

ARTICLE 19 - COMPLIANCE WITH KENTUCKY'S COMPENSATION AND UNEMPLOYMENT INSURANCE LAWS KRS 45A.480

The successful contractor will be required to assure, by affidavit, that all contractors and subcontractors employed, or will be employed, under the provisions of the contract shall be in compliance with Kentucky requirements for Worker's Compensation Insurance according to KRS Chapter 342 and Unemployment Insurance according to KRS Chapter 341.

UNIVERSITY OF KENTUCKY
CAPITAL CONSTRUCTION PROCUREMENT SECTION
FORM OF PROPOSAL

Project Title: Project 2393.0 South Campus Parking Lot

Purchasing Officer: Wendy H Brown

NOTE: The following Form of Proposal shall be followed exactly in submitting a proposal for this work. If this copy is lost, an additional copy will be furnished upon written request to the authority issuing Contract Documents.

This Proposal is submitted by: _____
(NAME AND ADDRESS OF BIDDER)

Date: _____

Telephone: _____

| | |
|---|--|
| TO: BID CLERK UNIVERSITY OF KENTUCKY CAPITAL CONSTRUCTION PROCUREMENT RM. 322 SERVICE BUILDING LEXINGTON, KY. 40506-0005 | INVITATION TO BID: <u>CCK-1952-14</u> BID OPENING DATE: <u>April 30, 2014</u> TIME <u>3:00 P.M. E.S.T.</u> |
|---|--|

The Bidder, in compliance with your Invitation for Bids for the above referenced Project, having carefully examined the site of the Work, the Drawings and complete Contract Documents as defined in Article I of the General Conditions, as well as the Specifications affecting the work as prepared by the Consultant, hereby proposes to furnish all labor, materials, supplies and services required to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the price stated below without qualification.

The Bidder hereby acknowledges receipt of the following Addenda:

ADDENDUM NO. _____ DATED _____

ADDENDUM NO. _____ DATED _____

ADDENDUM NO. _____ DATED _____

(Here insert the number and date of any Addenda issued and received. If none has been issued and received, the word NONE should be inserted.)

Contractor Report of Prior Violations of
Chapters 136,139, 141, 337, 338, 341, and 342

Pursuant to KRS 45A.485, the Contractor shall, prior to the award of a Contract, reveal final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 by the Contractor that have occurred in the previous five (5) year period.

This statute also requires for the duration of the Contract established, the Contractor be in continuous compliance with the provisions of Chapters 136, 139, 141, 337, 338, 341, and 342 that apply to the Contractor's operations. The Contractor's failure to reveal a final determination of a violation of KRS Chapters 136, 139, 141, 337, 338, 341, and 342, or failure to comply with any of the above cited statutes for the duration of the Contract shall be grounds for the cancellation of the Contract, and the disqualification from eligibility for future contracts for a period of two (2) years.

The Contractor, by signing and submitting a Bid on this Invitation, agrees as required by KRS 45A.485 to submit final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341, and 342 that have occurred in the previous five (5) years prior to the award of a Contract and agrees to remain in continuous compliance with the provisions of these statutes during the duration of any contract that may be established. Final determinations of any violations of these statutes, must be provided to the University by the successful Contractor prior to the award of a Contract.

LUMP SUM PROPOSAL

The Bidder agrees to furnish all labor, materials, supplies and services required to complete the Work, for the above referenced Project, for the Capital Construction Procurement Section, University of Kentucky, as described in the Specifications and Contract Documents and shown on the Drawings enumerated below and as modified by the Addenda listed above.

FOR THE LUMP SUM OF _____

(USE WORDS)

DOLLARS AND

CENTS.

(USE WORDS)

(USE WORDS)

(\$ _____)

(USE FIGURES)

Add Alternate: Bus Pull-Off Area

(\$ _____)

(USE FIGURES)

FORM OF PROPOSAL

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

I hereby certify:

1. That I am the Bidder (if the Bidder is an individual), a partner in the Bidder (if the Bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);
2. That the submitted Bid or Bids covering Capital Construction Procurement Section Invitation No. CCK-1952-14 have been arrived at by the Bidder independently and have been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other contractor, vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition; as prohibited by provision KRS 45A.325;
3. That the contents of the Bid or Bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished with the Bid or Bids and will not be communicated to any such person prior to the official opening of the Bid or Bids;
4. That the Bidder is legally entitled to enter into the contracts with the University of Kentucky and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 164.390, and 45A.330 to 45A.340 and 45A.455;
5. This offer is good for 60 calendar days from the date this Bid is opened. In submitting the above, it is expressly agreed that upon proper acceptance by the Capital Construction Procurement Section of any or all items Bid above, a contract shall thereby be created with respect to the items accepted;
6. That I have fully informed myself regarding and affirm the accuracy of all statements made in this Form of Proposal including Bid Amount.
7. Unless otherwise exempted by KRS 45.590, the Bidder intends to comply in full with all requirements of the Kentucky Civil Rights Act and to submit data required by the Kentucky Equal Employment Act upon being designated the successful contractor.
8. That the bidding contractor and all subcontractors to be employed do not and will not maintain any facilities they provide for employees in a segregated manner and they are in full compliance with provisions of 41 CFR 60-1.8 that prohibits the maintaining of segregated facilities.
9. In accordance with KRS45A.110(2), the undersigned hereby swears under penalty of perjury that he/she has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky and that the award of a contract to the bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

READ CAREFULLY - SIGN IN SPACE BELOW - FAILURE TO SIGN INVALIDATES BID

SIGNED BY _____ TITLE _____

PRINT NAME _____ FIRM _____

ADDRESS _____ AREA CODE & PHONE _____

_____ FAX _____

CITY STATE ZIP CODE

DATE _____

BUSINESS CLASSIFICATION

Please complete this form which is necessary for the University of Kentucky vendor database. Mark only one classification. Refer to "Definitions" for assistance in determining correct classification.

- (01)___ Small Business
- (02)___ Large Business
- (03)___ Disadvantaged Small Business
- (04)___ Disadvantaged Large Business
- (05)___ Woman-Owned Small Business
- (06)___ Woman-Owned Large Business
- (07)___ Disadvantaged Woman-Owned Small Business
- (08)___ Disadvantaged Woman-Owned Large Business
- (09)___ Other

DEFINITIONS

- (01) **SMALL BUSINESS:** A business concern that is organized for profit, is independently owned and operated, is not dominant in the field of operations in which it is bidding, and meets the size standards as prescribed in the Code of Federal Regulations, Title 13, Part 121. Consult your local or district Small Business Administration (SBA) office if further clarification is needed.
- (02) **LARGE BUSINESS:** A business concern that exceeds the small business size code standards established by SBA.
- (03) **DISADVANTAGED SMALL BUSINESS:** A business concern (a) that is at least 51 percent owned by one or more socially and economically disadvantaged individuals (as defined below), or a publicly owned business, having at least 51 percent of its stock owned by one or more socially and economically disadvantaged individuals; and (b) has its management and daily business operations controlled by one or more such individuals. Socially and economically disadvantaged individuals include Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans and other minorities or individuals found to be disadvantaged by the SBA.
- (04) **DISADVANTAGED LARGE BUSINESS:** A concern that meets the definition of socially and economically disadvantaged individuals, but which is not a small business by the SBA's size standards.
- (05) **WOMAN-OWNED SMALL BUSINESS:** A small business that is at least 51 percent owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" means actively involved in the day to day management.
- (06) **WOMAN-OWNED LARGE BUSINESS:** A concern that meets the definition of woman owned and operated, but which is not a small business by the SBA's standards.
- (07) **DISADVANTAGED, WOMAN-OWNED SMALL BUSINESS:** A concern that meets the definition of both (03) and (05) above.
- (08) **DISADVANTAGED, WOMAN OWNED LARGE BUSINESS:** A concern that meets the definition of both (04) and (06) above.
- (09) **OTHER:** A concern that does not meet any of the above definitions.

THE FOLLOWING ITEMS ARE HEREWITH ENCLOSED AS REQUIRED BY KRS 45A.185

1. Bid Bond or Certified Check in an amount not less than five percent (5%) of total Bid.
2. List of Proposed Subcontractors and Unit Prices. (if required)
3. Authentication of Bid and Statement of Non-Collusion and Non-Conflict of Interest.
4. List of Materials and Equipment.
5. VENDOR NUMBER: It is imperative that you furnish your Federal Employer Identification Number in the space provided below. Failure to do so may delay the processing of purchase orders issued to your firm.

(Nine Digit Number)

BIDDER'S QUALIFICATIONS

The Commonwealth of Kentucky Model Procurement Code (KRS 45A.080) requires contracts to be awarded, "to the responsive and responsible bidder whose bid offers the best value" to the University of Kentucky. In order to determine if the Bidder has the experience, qualifications, resources and necessary attributes to provide the quality workmanship, materials and management required by the plans and specifications, the Bidder may be required to complete and submit the information requested on the University of Kentucky Contractor Bidder Determination of Responsibility questionnaire. Failure to provide the information requested on the questionnaire or failure to provide any additional submittals or information that may be requested to make this determination may be grounds for a declaration of non-responsibility with respect to the Bidder. A copy of the Contractor Determination of Responsibility questionnaire is available upon request to all Bidders.

TIME LIMIT FOR EXECUTION OF CONTRACT DOCUMENTS

It is further agreed, that in the event this Proposal is accepted by the Owner and the undersigned shall fail to execute the Contract and furnish satisfactory Payment and Performance Bond within ten (10) consecutive calendar days from the date of notification of the award of the Contract, the Owner may at his option, determine that the undersigned has abandoned the Contract and thereupon, the Proposal shall become null and void and the Bid guarantee, check or Bid bond which accompanied it shall be forfeited and become the property of the Owner as liquidated damages for each failure and no protest pursuant to such action will be made. If the Undersigned shall execute the Contract, and furnish satisfactory Payment Bond and Performance Bond, it is understood that the Bid Guarantee or Bid Bond will be returned to the undersigned by the Owner.

UNIT PRICES

NOTE: Unit Prices shall include the furnishing of all labor, materials, supplies and services and shall include all items of cost, overhead and profit for the Contractor and any subcontractor involved, and shall be used uniformly without modifications for either additions or deductions. The Unit Prices as established shall be used to determine the equitable adjustment of the Contract Price in connection with changes, deletions or extra work performed under the Contract and the "Rules of Measurement" set forth in the General Conditions shall govern.

All Bidders will be required to complete and submit the following information at the time of bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.

The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.

| DESCRIPTION OF WORK | UNIT PRICE |
|--|---------------|
| Earth Excavation, Mass | \$ _____ /CY |
| Earth Excavation, Trench | \$ _____ /CY |
| Rock Excavation, Mass | \$ _____ /CY |
| Rock Excavation, Trench | \$ _____ /CY |
| Unsuitable Soil Removal, including disposal offsite and backfill with compacted crushed stone. | \$ _____ /CY |
| Geotextile Fabric | \$ _____ /SY |
| 15" dia. Storm Piping Material: _____ | \$ _____ /LF |
| 18" dia. Storm Piping Material: _____ | \$ _____ /LF |
| 30" dia. Storm Piping Material: _____ | \$ _____ /LF |
| Drop Box, Inlet Type 11 , | \$ _____ /EA |
| 60" ID Storm Manhole, 6' depth, including frame and cover | \$ _____ /EA |
| 60" ID Storm Manhole, additional depth, | \$ _____ /VF |
| Curb Inlet, Double Grate, 6' depth \$ _____ /EA | |
| Curb Inlet, Double Grate, Additional depth | \$ _____ /VF |
| Concrete headwall, 24" pipe and less | \$ _____ /EA |
| Compacted Stone Base (DGA) | \$ _____ /Ton |
| Asphalt Base Course | \$ _____ /Ton |

| | |
|---|--------------|
| Asphalt Surface Course | \$_____ /Ton |
| Concrete roll curb and gutter | \$_____ /LF |
| 4" Concrete sidewalk over 4" compacted stone base | \$_____ /SY |
| Lawn Seeding | \$_____ /SY |
| Lawn Sodding | \$_____ /SY |
| 2" Caliper, Imperial Honeylocust | \$_____ /EA |
| 2" Caliper, Willow Oak | \$_____ /EA |
| Lighting Fixture, OLF-1 | \$_____ /EA |
| Lighting Fixture, OLF-2 | \$_____ /EA |
| Pole Base, Per detail | \$_____ /EA |
| Pole Base, Additional depth | \$_____ /VF |
| Parking Striping, | \$_____ /LF |

PRIMARY LIST OF PROPOSED SUBCONTRACTORS

All subcontractors are subject to the approval of the Capital Construction Procurement Section and Capital Project Management Division, University of Kentucky, Lexington, KY.

If certain branches of the Work are to be done by the Prime Contractor, so state.

The apparent low bidder will be required to complete and submit to the University the following information by twelve (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.

The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.

DIVISION OF WORK

NAME AND ADDRESS OF SUBCONTRACTOR

Subcontractors

| | |
|--|-------|
| Earthwork | _____ |
| Drainage Pipe and Structure Installation | _____ |
| Underground Detention System Installation | _____ |
| Paving | _____ |
| Pavement Striping | _____ |
| Concrete site work (curbing and sidewalks) | _____ |
| Electrical | _____ |
| Erosion Control | _____ |
| Landscaping | _____ |

LIST OF MATERIALS AND EQUIPMENT

Each item listed under the different phases of construction must be clearly identified so that the Owner will definitely know what the Bidder proposes to furnish.

The use of a manufacturer's or dealer's name only, or stating "as per Plans and Specifications," will not be considered as sufficient identification.

Where more than one "Make" or "Brand" is listed for any one item, the Owner has the right to select the one to be used.

The apparent low bidder will be required to complete and submit to the University the following information by twelve (12) noon of the first working day following the bid opening. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.

The apparent low bidder is requested to attend a post bid meeting which will be scheduled at a later date.

Material Suppliers

- Storm Piping (Corrugated Metal, CMP) _____
- Storm Piping (Reinforced Concrete Pipe, RCP) _____
- Storm Piping (High-Density Polyethylene, HDPE) _____
- Storm Piping (Polyvinyl Chloride, PVC) _____
- Underground Detention System _____
- Stormwater Quality System _____
- Precast Concrete Structures _____
- Concrete _____
- Crushed Stone _____
- Asphalt _____
- Landscape Materials _____
- Electrical Conduit _____
- Lighting Fixtures _____

IDENTIFICATION OF MINORITY SUBCONTRACTORS AND MATERIAL SUPPLIERS

Participation of Minority and Women owned Contractors and businesses.

The University of Kentucky encourages and supports the participation of minority and women owned businesses.

1. Minority and Women Subcontractors

2. Minority and Women Material Suppliers

SUPERINTENDENT

In accordance with Article 17 of the General Conditions a full-time superintendent will be required on this project. Below, please list the superintendent your firm will employ on this project. The successful Bidder will be required to furnish a resume of the superintendents qualifications and or past projects.

List the Superintendent's Name

UNIVERSITY OF KENTUCKY
CAPITAL CONSTRUCTION PROCUREMENT SECTION

**CONTRACTOR/BIDDER
DETERMINATION OF RESPONSIBILITY**

1. Purpose

The Commonwealth of Kentucky Model Procurement Code (KRS 45A.080) requires that a contract be awarded to the lowest responsive and responsible bidder whose bid offers the best value. KRS 45A.070(6) defines "Responsible bidder or offeror "as" a person who has the capability in all respects to perform fully the contract requirements and the integrity and reliability which will assure good faith performance," and "Best value" as "a Procurement in which the decision is based on the primary objective of meeting the specific business requirements and best interests of the Commonwealth." The information requested in this document is to be used to evaluate the "responsibility" by verifying the apparent low bidder:

- (a) Has adequate financial resources (in working capital and bonding capacity) in relation to the scope and dollar amount of the project or the ability to secure such resources;
- (b) Has the experience, organization, technical qualification, available personnel resources, and has or can acquire the equipment necessary to perform the scope of work bid;
- (c) Is able to comply with the required performance schedule or completion date, taking into account existing commitments (i.e. capacity); and
- (d) Has a satisfactory record of performance, integrity, judgment and skills to complete the project bid.

The information provided must verify that the bidding firm has a sufficient level of expertise, experience, financial stability, and personnel resources to qualify the firm as being "responsible" prior to proceeding with an award of Contract. The determination of the firm's capability and responsibility will be made as fairly and honestly as possible using a reasonable exercise of sound judgment and discretion in the review of information provided or otherwise secured through references or other sources.

2. Application Submittal

The low responsive Bidder must complete the information requested by typing or clearly printing responses in ink. All information requested must be provided. If a question does not apply, insert "NA" for not applicable. The University of Kentucky reserves the right to request supplemental information to fully determine responsibility of the Bidder. The Bidder agrees to provide supplemental information, if requested by the University.

3. Insurance Requirements

The Successful Bidder will be required to provide proof of insurance indicating current liability coverages, including workers compensation, with limits equal to or exceeding the amounts required by the bid documents. Additionally, builders risk coverage equal to the Contract amount will be required of the successful contractor.

*NOTE: Pursuant to KRS 45A. 110, except as otherwise provided under the Open Records Act and any other applicable law, the Bidder has the right of nondisclosure to the public of certain information required by this submittal. If the Bidder wishes nondisclosure of certain information he/she shall enclose the confidential information in a separate envelope marked CONFIDENTIAL and forward it with the information and other submittals required by this document. If this is not done, he/she waives the right of nondisclosure of this information and the signing of the Bid Proposal shall constitute written waiver of that right.

NOTE: The contractor offering the apparent low bid will be required to either have on file with the University or supply the information required by Part I of this submittal by Twelve (12) Noon the following the bid opening. If the information required by Part I is on file with the University and is current and accurate, only the information requested by Part II will be completed and submitted by the apparent low bidder. All bidders must update and keep current all previously submitted "on file" Part I information.

Part I
Contractor/Bidder Responsibility
Determination Information Submittal

1. Name of Firm _____
Street Address _____
City, State, Zip _____
County _____
Business Phone (____) _____ Telefax (____) _____

2. Mailing Address _____
City, State, Zip _____

3. Contact Person _____

4. Type of Firm Corporation Partnership
 Sole Proprietorship Individual
 Joint Venture Other (Explain)

5. If your firm is a corporation, provide the following:

Date of incorporation _____ State of incorporation _____

States where corporation is authorized to conduct business _____

Attach proof that corporation is in good standing with the Kentucky Secretary of State.

6. If your firm is an individual or partnership, provide the following:

Date of organization _____

If a partnership, is it limited or general? _____

Name and address of all partners and specify their respective partnership participation, i.e., limited, general, managing.

7. If your firm is other than a corporation, individual or partnership, describe organization and identify principals.

8. In the space provided below, describe the type(s) of construction and project management expertise offered by your company.

(use additional pages if required) _____

9. List key persons (partners, owners, officers and directors). Include any other persons who have duties, responsibilities or authority typically delegated to partners, owners, officers or directors. Provide organization chart of the key individuals in the firm.

| <u>Name of Person</u> | <u>Position/title</u> | <u>% Ownership</u> |
|-----------------------|-----------------------|--------------------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

10. In the past five years, has the firm ever been fined for violating state or federal safety or environmental laws? _____ Yes _____ No If yes, attach an explanation.

11. Has any key person with the firm ever been convicted of any state or federal crime (excluding traffic violations), including but not limited to embezzlement, theft, bribery, falsification or destruction of records, receipt of stolen property, criminal anti-trust violations or bid-rigging? _____ Yes _____ No If yes, attach an explanation.

12. Has a civil court issued a judgment of \$10,000 or more against the firm in the past five years? _____ Yes _____ No If yes, attach an explanation.

13. Is the firm currently a party to a pending lawsuit with a potential damages alleged of \$10,000 or more? _____ Yes _____ No If yes, attach an explanation.

14. In the past five years, has the firm been terminated from or failed to complete any contract? _____ Yes _____ No If yes, attach an explanation.

15. How many years has the firm been in business? _____ years _____ months

16. Performance and Payment Bonds

Surety Company Name _____

Street Address _____

City, State, Zip _____

Phone Number () _____ Fax () _____

Local Bond Agency _____

Kentucky Licensed Agent _____

Street Address _____

City, State, Zip _____

Phone Number () _____ Fax () _____

17. Current level of bonding capacity authorized by the surety.

Single Limit \$ _____ Aggregate Limit \$ _____

18. Bank Reference

Bank Name _____

Street Address _____

City, State, Zip _____

Phone Number () _____ Fax () _____

Contact Person _____

NOTE: The apparent low bidder will be required to complete and submit to the University the following information by twelve (12) noon of the following working day following the bid opening or other time as may be established during the post bid review of the bid submittal. The information requested in this submittal is required to assist the University in determining contractor responsibility to complete the project being bid.

PART II
Contractor/Bidder Responsibility
Determination Information Submittal

1. Name of Firm _____
Street Address _____
City, State, Zip _____
County _____
Business Phone (____) _____ Telefax (____) _____

2. Mailing Address _____
City, State, Zip _____

3. Contact Person _____

4. The information previously submitted under Part I of this document is current and accurate and no changes to Part I are necessary at this time. _____ True _____ False If False, the bidder shall submit with the Part II submittal corrections as required to update the Part I information.

5. In the space provided below, describe the type(s) of construction and project management expertise offered by your company to substantiate the company's experience in the type of project, type of construction, or the management of the type of construction required for this project. You should indicate a detailed plan to execute and manage this project, as well as any technological planning systems employed.

(use additional pages if required) _____

6 List the name and title of the home office administrative project manager who will be assigned and responsible for this project. A current resume of this individual shall be attached to this submittal. The resume should include a list of projects for which this project manager has been responsible within the past five (5) years.

Name of Manager _____ Title _____

7. List the name and title of the on site manager that will be assigned and responsible for this project. A current resume of this individual shall be attached to this submittal. This resume should include a list of projects for which this manager has been responsible within the past five (5) years..

Name of Project Manager _____ Title _____

15. List below five of your most recently completed projects that demonstrate your ability to complete the type work required by the project being bid. (NOTE: The inability to list five such projects will not necessarily prevent a determination of responsibility.)

A. Project Title _____ Owner _____
Contract Amount _____ Completion date _____
Owner Phone Number () _____ Fax () _____
Name of Owner Contact _____
Architect/Engineer _____ Phone No.() _____
Brief description of your firm's work and responsibility in this project.

B. Project Title _____ Owner _____
Contract Amount _____ Completion date _____
Owner Phone Number () _____ Fax () _____
Name of Owner Contact _____
Architect/Engineer _____ Phone No.() _____
Brief description of your firm's work and responsibility in this project.

C. Project Title _____ Owner _____
Contract Amount _____ Completion date _____
Owner Phone Number () _____ Fax () _____
Name of Owner Contact _____
Architect/Engineer _____ Phone No.() _____

Brief description of your firm's work and responsibility in this project.

D. Project Title _____ Owner _____

Contract Amount _____ Completion date _____

Owner Phone Number () _____ Fax () _____

Name of Owner Contact _____

Architect/Engineer _____ Phone No.() _____

Brief description of your firm's work and responsibility in this project.

E. Project Title _____ Owner _____

Contract Amount _____ Completion date _____

Owner Phone Number () _____ Fax () _____

Name of Owner Contact _____

Architect/Engineer _____ Phone No.() _____

Brief description of your firm's work and responsibility in this project.

16. List below all projects that are currently under construction that demonstrate your ability to complete the type work required by the project being bid.

A. Project Title _____ Owner _____
Contract Amount _____ Completion date _____
Owner Phone Number () _____ Fax () _____
Name of Owner Contact _____
Architect/Engineer _____ Phone No.() _____
Brief description of your firm's work and responsibility in this project.

B. Project Title _____ Owner _____
Contract Amount _____ Completion date _____
Owner Phone Number () _____ Fax () _____
Name of Owner Contact _____
Architect/Engineer _____ Phone No.() _____
Brief description of your firm's work and responsibility in this project.

C. Project Title _____ Owner _____
Contract Amount _____ Completion date _____
Owner Phone Number () _____ Fax () _____
Name of Owner Contact _____
Architect/Engineer _____ Phone No.() _____

Brief description of your firm's work and responsibility in this project.

D. Project Title _____ Owner _____

Contract Amount _____ Completion date _____

Owner Phone Number () _____ Fax () _____

Name of Owner Contact _____

Architect/Engineer _____ Phone No.() _____

Brief description of your firm's work and responsibility in this project.

E. Project Title _____ Owner _____

Contract Amount _____ Completion date _____

Owner Phone Number () _____ Fax () _____

Name of Owner Contact _____

Architect/Engineer _____ Phone No.() _____

Brief description of your firm's work and responsibility in this project.

Attach additional pages as required.

17. Participation of Minority and Women owned contractors and businesses.

It is the goal of the University of Kentucky that at least 10.9% of the contract dollar amount be completed by minority owned contractors and businesses and at least 6.9% of the total contract amount be completed by women owned contractors and businesses. Provide in the spaces below those contracts that will be issued to minority or women contractors and material suppliers upon award of a contract.

A. Name Subcontractor/Material Supplier _____
Contractor/Vendor Classification _____ Contract Amount _____
Contractor/ Supplier Address _____
Owner Phone Number (_____) _____ Fax (_____) _____
Name of Owner Contact _____
Brief description of the Subcontractor/Material supplier work or responsibility on this project.

B. Name Subcontractor/Material Supplier _____
Contractor/Vendor Classification _____ Contract Amount _____
Contractor/ Supplier Address _____
Owner Phone Number (_____) _____ Fax (_____) _____
Name of Owner Contact _____
Brief description of the Subcontractor/Material supplier work or responsibility on this project.

C. Name Subcontractor/Material Supplier _____
Contractor/Vendor Classification _____ Contract Amount _____
Contractor/ Supplier Address _____
Owner Phone Number (_____) _____ Fax (_____) _____
Name of Owner Contact _____
Brief description of the Subcontractor/Material supplier work or responsibility on this project.

D. Name Subcontractor/Material Supplier _____

Contractor/Vendor Classification _____ Contract Amount _____

Contractor/ Supplier Address _____

Owner Phone Number (_____) _____ Fax (_____) _____

Name of Owner Contact _____

Brief description of the Subcontractor/Material supplier work or responsibility on this project.

E. Name Subcontractor/Material Supplier _____

Contractor/Vendor Classification _____ Contract Amount _____

Contractor/ Supplier Address _____

Owner Phone Number (_____) _____ Fax (_____) _____

Name of Owner Contact _____

Brief description of the Subcontractor/Material supplier work or responsibility on this project.

Attach additional pages as required.

17A. Calculation of Total Participation by Contractor/Supplier Classification

| Minority Contract | Amount | Women Contract | Amount |
|-------------------|----------|----------------|----------|
| 1. _____ | \$ _____ | 1. _____ | \$ _____ |
| 2. _____ | \$ _____ | 2. _____ | \$ _____ |
| 3. _____ | \$ _____ | 3. _____ | \$ _____ |
| 4. _____ | \$ _____ | 4. _____ | \$ _____ |
| 5. _____ | \$ _____ | 5. _____ | \$ _____ |
| 6. _____ | \$ _____ | 6. _____ | \$ _____ |
| 7. _____ | \$ _____ | 7. _____ | \$ _____ |
| 8. _____ | \$ _____ | 8. _____ | \$ _____ |
| 9. _____ | \$ _____ | 9. _____ | \$ _____ |
| 10. _____ | \$ _____ | 10. _____ | \$ _____ |

TOTAL \$ _____ TOTAL \$ _____

17B. Total Minority Owned Percentage

Total Minority Owned Amount from above \$ _____ divided by the Total Contract Amount
bid \$ _____ Equals _____ %.

17C. Total Women Owned Percentage

Total Women Owned Amount from above \$ _____ divided by the Total Contract Amount
bid \$ _____ Equals _____ %.

17D. If the total dollar amount of these contracts do not exceed 10.8% for minority owned and 6.9% for women owned contractors and suppliers you must provide documentation of your efforts to meet the established goal of participation.

We made the following efforts to involve Minority and Women Owned Contractors and material suppliers on this project. (List efforts made and attach proof of these efforts)

Certification and Signature:

I hereby certify that I am an authorized principal of the firm and I:

1. Have read, and understand the reason for submitting this information;
2. Agree, upon request, to provide any additional information that may be necessary for determination of contractor responsibility;
3. Will, upon request, provide complete financial statements within five business days;
4. Swear or affirm that all information provided on this submittal is true;
5. Understand that if any of the responses are found to be materially untrue, the firm will be ineligible to be awarded a contract.

Your signature on this document is a sworn statement to the University of Kentucky. This document must be signed by the firm's CEO, president, vice-president, partner or sole owner.

Under penalties of perjury, I hereby swear or affirm, warrant and represent that the above answers and information have been personally provided by me, and that I have the authority to execute this document on behalf of this firm.

Signature _____
 Name _____
 Title _____

State of _____)
 County of _____)

Subscribed and sworn to before me on this _____ day of _____, 2009, by

_____, _____ acting for and on behalf of
 (name) (office held)

 (firm)

 Notary Public _____, Kentucky
 My Commission expires _____

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FOR CONSTRUCTION BY A GENERAL CONTRACTOR
University of Kentucky
Capital Construction Division

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**GENERAL CONDITIONS OF THE CONTRACT
FOR CONSTRUCTION BY A GENERAL CONTRACTOR
University of Kentucky
Capital Construction Division**

These General Conditions are binding upon the General Contractor and all Sub-contractors as each are subject to the provisions contained herein.

ARTICLE 1 - DEFINITIONS

1.1 Wherever used in these General Conditions or in other Contract Documents, the following terms have the meaning indicated which are applicable to both the singular and plural thereof:

1.1.1 ARCHITECTS SUPPLEMENTAL INSTRUCTIONS (ASI) - The term "ASI" means a written order issued by the Consultant that clarifies or interprets the Contract Documents, that orders minor changes in the Work, that does not require an adjustment in either cost or time, and that does not require a Change Order

1.1.2 BUSINESS DAY – The term "Business Day" means a Calendar Day that is not a Saturday, Sunday or legal holiday in Fayette County, Kentucky.

1.1.3 CALENDAR DAY - The term "Calendar Day" means a day of twenty-four hours measured from midnight to the next midnight.

1.1.4 CHANGE ORDER - The term "Change Order" means a written order to the General Contractor, signed by the Owner and issued after the execution of the Contract, directing a change in the Work or an adjustment in the Contract Amount or the Contract Time. A Change Order may be an agreed change by the General Contractor and the Owner or it may be a unilateral change by the Owner.

1.1.5 CONSULTANT - The term "Consultant" means the person and/or entity, whether singular or plural, either Architect, Engineer or other Consultant, who is or are identified as such in the Contract Documents.

1.1.6 CONTRACT - The term "Contract" means the Contract between Owner and General Contractor and consists of all Contract Documents as defined in Article 1.1.8 of these General Conditions.

1.1.7 CONTRACT AMOUNT - The term "Contract Amount" means the sum stated in the Agreement which represents the total amount payable by the Owner to the General Contractor for the performance of the Work under the Contract Documents, plus or minus adjustments as provided for in the Contract Documents or by approved Change Orders.

1.1.8 CONTRACT DOCUMENTS - The "Contract Documents" include the Agreement of Contract between the Owner and the General Contractor (the "Agreement"); the General Conditions; the Special Conditions; the General Contractor's Form of Proposal; the General Contractor's Bonds; the Specifications, Drawings and Addenda for the construction of the Project; and any Change Orders issued after execution of this Contract. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Owner and any Sub-contractor, or any person or entity other than the General Contractor. Documents not included or expressly contemplated in this Article do not, and shall not, form any part of the Contract for Construction. Without limiting the generality of the foregoing, shop drawings and other submittals from the General Contractor or its Sub-contractors and suppliers do not constitute a part of the Contract Documents. Except as otherwise provided, where these Contract Documents obligate the General Contractor to certain responsibilities or require the General Contractor to perform certain actions, the General Contractor may require these same responsibilities and/or actions of one or more Sub-contractors. However, assignment of such responsibilities or actions to one or more Sub-contractors shall not be construed to relieve the General Contractor of its obligation to the University under this contract.

1.1.9 CONTRACT TIME - The term "Contract Time", unless otherwise provided, means the specified number of consecutive Calendar Days following the stipulated commencement of the Work as stated in the Work Order, plus or minus adjustments as provided for by approved Change Orders, within which the General Contractor shall complete the Work required by the Contract and shall achieve certification of substantial and final completion.

1.1.10 GENERAL CONTRACTOR or (GC) - The term "General Contractor" or "GC" means the person or entity who will or has entered into a contract with the Owner that assumes the risk for construction of the Project as the general contractor, and who will provide consultation and collaboration regarding the construction during and after design of the Project. The GC shall execute and hold all construction Sub-contracts and Purchase Orders for the Project.

1.1.11 KRS REFERENCES - Reference to "KRS" means the "Kentucky Revised Statutes" adopted by the Commonwealth of Kentucky, including all laws that may have been revised, amended, supplemented or new laws enacted.

1.1.12 OWNER - The term "Owner" means the University of Kentucky, a statutory body corporate existing pursuant to Sections 164.100 et seq. of the Kentucky Revised Statutes.

1.1.13 PROJECT - The term "Project" means the total construction of the Work performed under the Contract Documents, which may be the whole or a part, and which may include construction by the Owner or by separate contracts.

1.1.14 PROJECT MANAGER - The term "Project Manager", when used alone, means the Owner's representative responsible for administration and management of the Project. The Owner's Project Manager during construction shall be the designated University of Kentucky Capital Projects Management Project Manager that is in charge of the Project. The term "General Contractor's Project Manager" or "GC Project Manager" means the individual employed by the General Contractor who is assigned to the Project to provide overall management during both the design and construction phases of the Project, and who has total responsibility for the successful completion of the Project

1.1.15 PROVIDE - The term "Provide," as used throughout the specifications, shall mean furnish, install and pay for.

1.1.16 SHOP DRAWINGS - The term "Shop Drawings" means drawings, diagrams, schedules, and other data specially prepared for the Work by the General Contractor or any Sub-contractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

1.1.17 SUBSTANTIAL COMPLETION - The term "Substantial Completion" is the point at which, as certified in writing by the Owner, a project is at the level of completion, in strict compliance with the contract, where (a) necessary approval by public regulatory authorities (and by other authorities having jurisdiction or as identified in Article 11.2, as necessary) has been given; (b) the Owner has received all required warranties and documentation, and (c) the Owner may enjoy beneficial use or occupancy and may use, operate, and maintain the project in all respects, for its intended purpose. Partial use or occupancy shall not necessarily result in the project being deemed substantially complete and shall not be evidence of Substantial Completion. In order for the Owner to enjoy beneficial use or occupancy and use, operate, and maintain the project in all respects, for its intended purpose, the stage or progress of the Work or a designated portion thereof shall be sufficiently complete, accessible, operable and usable, and all parts, systems and site Work shall be 100% complete, cleaned and available for the Owner's full use without interruption in accordance with the Contract Documents, including but not limited to the provisions of Article 28 of these General Conditions. The Work will not be considered acceptable for Substantial Completion review until all Project systems included in the Work are operational as designed and scheduled, all designated or required governmental inspections and certifications have been made and approvals provided to the Owner, designated instruction of the Owner's personnel in the operation of systems has been completed, and all final finishes within the Contract Documents are in place. In general, the only remaining Work shall be minor in nature so that the Owner and/or the Owner's tenants could occupy the Project on that date and the completion of the Work by the General Contractor would not materially

interfere or hamper the Owner's or the Owner's tenants' normal business operations. As a further condition of Substantial Completion acceptance, the General Contractor shall certify in writing that all remaining Work, the same being solely of a "punch list" nature, will be completed within thirty (30) consecutive Calendar Days following the date of Substantial Completion.

1.1.17.1 The parties agree that "substantial completion" as defined in Article No. 2 of the Agreement and Article 1 of the General Conditions, as extended by approved Change Order(s) pursuant to Article 18.1 of the General Conditions, shall be the "date of completion specified in the contract" for purposes of KRS. 45A.250(2).

1.1.18 SUB-CONTRACTOR - The term "Sub-contractor" means the person, company, corporation, joint venture or other legal entity with whom the General Contractor has executed a Contract for a portion of the Work.

1.1.19 WORK - The term "Work" means the scope of construction and services required by the Contract Documents and all approved Change Orders, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the General Contractor to perform and complete the General Contractor's obligations under the Contract in an expeditious, orderly and workmanlike manner. The Work may constitute the whole or a part of the Project.

1.1.20 WORK ORDER - The term "Work Order" means a written notice by the Owner to the General Contractor authorizing the General Contractor to commence Work under the Contract and establishing the beginning date from which the time for Substantial and Final Completion shall be established.

1.1.21 UNIT PRICE - The term "Unit Price" means the amount per unit of measurement for materials or services as described in the bid documents.

ARTICLE 2 - CONSULTANT

2.1 The Consultant will be the Owner's representative during construction and until the Work is complete. The Consultant will advise and consult with the Owner. The Owner's instructions to the General Contractor may be forwarded through the Consultant.

2.2 The Consultant will regularly, but no less frequently than monthly, visit the site to become familiar with the progress of the Work, the quality of the Work being provided and to determine if the Work is proceeding in accordance with the Contract Documents. On the basis of these on-site inspections, the Consultant will inform the Owner of the progress of the Work, will advise the Owner of any defects and deficiencies observed in the Work and, when appropriate, will certify to the Owner that the Work in place equals or exceeds the amount requested by the General Contractor on all applications for progress payments.

2.2.1 If applicable for the Work, the Consultant will verify to the Owner that the General Contractor is performing erosion prevention and sediment control inspections as required by the Kentucky Division of Water Construction General Permit (KYR10) at least once every 7 days and shall include the findings in the site visit reports.

2.3 The Consultant will be the interpreter of the requirements of the drawings and specifications and any changes made to the drawings and specifications.

2.4 Claims, disputes, and other matters in question that arise relating to the execution or the progress of the Work shall be referred in writing to the Consultant by the General Contractor. The Consultant will provide a response in accordance with and subject to the provisions of Article 38 of these General Conditions

2.5 The Consultant will have the authority to reject Work which does not conform to the Contract Documents or to the required level of quality and performance.

2.6 The Consultant will review and approve, or take other appropriate action upon receipt of the General Contractor's submittals such as Shop Drawings, product data, and samples. The review of submittals will be for

general conformance with the design concept of the work, and for compliance with the information provided by the Contract Documents. Such review will not relieve the General Contractor of any responsibility for errors or omissions in submittals, and will in no way constitute a waiver of or change to the requirements of the Contract Documents.

2.6.1 The Consultant's review and response will be completed with reasonable promptness with a goal of ten (10) business days or less. The Consultant's review of a specific item shall not indicate approval of an assembly of which the item is a component.

2.7 The Consultant will prepare Change Orders for the Owner to direct changes in the Work. Minor changes in the Work, not involving modifications to the contract cost or completion times and that are consistent with the purpose of Work, may be directed by the Consultant through Architectural Supplemental Instructions (ASI).

2.9 When requested by the General Contractor, the Consultant will conduct inspections to determine if the Project is at the level of completion required by and in strict compliance with the Contract such that the Owner may enjoy beneficial use or occupancy and may use, operate, and maintain the project in all respects, for its intended purpose, as further defined in the Contract. If the level of completion warrants, the Consultant will confirm that all necessary approvals by public regulatory authorities or other authorities having jurisdiction have been given, will confirm that the Owner has received all required warranties and documentation, will recommend dates for certification of Substantial Completion and Final Completion by the Owner, and will complete and submit the Notice of Termination of coverage under the KPDES General Permit for Storm Water Discharges Associated with Construction Activity.

2.10 The General Contractor will accept direction for the Work on the Project only from the Owner's Project Manager or from the Consultant. Requests for information from the General Contractor shall be directed to the Consultant.

ARTICLE 3 - CORRELATION AND INTENT OF CONTRACT DOCUMENTS

3.1 Execution of the Contract by the General Contractor is a representation that the General Contractor has or shall thoroughly and carefully examine the site of the of Work; shall timely investigate all conditions which can affect the Work or its cost, including but not limited to availability of labor, materials, supplies, water, electrical power, roads, access to the site, uncertainties of weather, water tables, the character of equipment and facilities needed to perform the Work, and local conditions under which the Work is to be performed; and further, that the General Contractor shall insure that the documents issued for bidding by Sub-contractors reflect the results of this investigation and are adequate to complete the Work. It is the responsibility of the General Contractor to be familiar with and comply with all Federal, State, and local laws, ordinances, and regulations which might affect those engaged in the Work, and to be familiar with the materials, equipment, or procedures to be used in the Work, or which in any other way could affect the completion of the Work. The General Contractor shall carefully study and compare the Contract Documents with each other and with other information provided to the General Contractor by the Consultant or the Owner pursuant to the Contract Documents and shall notify the Owner and the Consultant in writing of any errors, inconsistencies or omissions in the Contract Documents recognized by the General Contractor. Any failure to properly familiarize itself with the proposed Work shall not relieve the General Contractor from the responsibility for completing the Work in accordance with the Contract Documents.

3.2 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the General Contractor. Labor or materials which are reasonably inferable from the Contract Documents and which are necessary to produce the desired result, even though not specifically mentioned in the Contract Documents, shall be included in the Work at no additional cost to the Owner.

3.3 In the event a question arises regarding the meaning or intent of the Contract Documents, the General Contractor shall report it by preparing an RFI in Constructware[®] to the Consultant. The Consultant shall furnish, with reasonable promptness and with a goal of three (3) business days and by whatever means as may be appropriate, additional instructions necessary for the proper execution of the Work. All such drawings and instructions shall be consistent with the Contract Documents, true developments thereof, and reasonably

inferable therefrom. The Work shall be executed in conformity therewith and the General Contractor shall do no Work without proper drawings and instructions. Items indicated on drawings as "N.I.C." or "Not In Contract" are shown for explanation purposes only and are not to be included in this Contract.

3.4 The Contract Documents are complementary, and what is required by one shall be binding as if required by all. In case of conflicts between the various documents, the order of precedence will be as follows: (1) Addenda, (2) Special Conditions, (3) General Conditions, (4) Technical provisions of the Specifications and (5) Drawings.

3.5 Any notice to the General Contractor from the Owner regarding this Contract shall be in writing and delivery and service of such notice shall be considered complete when sent by certified mail to the General Contractor at General Contractor's last known address. Such notice may also, at the Owner's election, be hand-delivered to the General Contractor or the General Contractor's authorized representative.

ARTICLE 4 - PRE-CONSTRUCTION CONFERENCE

4.1 Following the execution of the Contract, a pre-construction conference will be held. Representatives of the Capital Project Management Division, Consultant, General Contractor, and all major Sub-contractors shall be present to discuss the time for construction, methods and plan of operation, authority of the Consultant, procedures for handling shop drawings, progress estimates and requests for payments, and other relevant issues. The time and location of this meeting will be the responsibility of the General Contractor in consultation with the Consultant, Owner and other interested parties.

4.2 Environmental aspects of the project, including erosion prevention and sediment control (EPSC) and storm water management shall be discussed during this conference. The Group shall discuss the Storm Water Pollution Prevention Plan (SWPPP) to ensure that all parties understand the requirements. During this meeting the responsibility for reading the rain gage on a daily basis will be established. The Contractor will identify the initial measures to be installed prior to land disturbing activities beginning. Any modifications to the SWPPP due to constructability issues should be discussed at this conference.

ARTICLE 5 - SHOP DRAWINGS

5.1 The General Contractor shall submit a shop drawing and product sample submittal schedule to the Consultant establishing dates for the submission of Shop Drawings and product samples prior to the submittal of the General Contractor's first application for payment for construction phase services. The schedule shall have been coordinated with all Sub-contractors and material suppliers as well as the General Contractor's construction schedule and shall allow for adequate and reasonable time for review of the samples and submittals by the Consultant. The General Contractor shall be responsible for compliance with the submittal schedule and shall insure that the Submittal Schedule is maintained in order to accurately reflect the status of processing all required submittals.

5.2 The General Contractor shall review product samples and shop drawings for compliance with the requirements of the Contract Documents, and shall submit them to the Consultant in accordance with submittal procedure and schedule established. The General Contractor's review and submittal to the Consultant of any shop drawing or sample shall constitute a representation to the Owner and Consultant that a) the General Contractor has determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, or assumes full responsibility for doing so, and that b) each shop drawing or sample has been reviewed or coordinated with the requirements of the Work and the Contract Documents. Shop drawings and submittal requirements shall not be deemed satisfied until approvable documents are received by the Consultant. Incorrect or incomplete submittals will be returned to the General Contractor without action. No claim for additional time or extension of the contract will be considered if such claim is the result of failure by the General Contractor to provide correct, accurate, complete and approvable submittals.

5.3 The Consultant will review submittals with reasonable promptness, and take appropriate action or return submittals to the General Contractor for corrections as may be required. The General Contractor shall make any corrections required by the Consultant for compliance with the Contract and shall return the required number of corrected copies of shop drawings and resubmit new samples until approved. The General

Contractor shall direct specific attention, in writing, or on resubmitted shop drawings, to revisions other than the corrections called for by the Consultant on previous submissions.

5.4 Where a shop drawing or sample submission is required by the specifications, no related Work shall be commenced until the submission has been accepted in writing by the Consultant. The review and acceptance shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The acceptance of a separate item will not indicate acceptance of the assembly in which the item functions. A copy of each accepted shop drawing and product sample shall be kept in good order by the General Contractor at the site and shall be made available to the Consultant on request.

5.5 The Consultant's acceptance of Shop Drawings or samples shall not relieve the General Contractor from the responsibility for any deviations from the requirements of the Contract Documents unless the General Contractor has in writing called the Consultant's attention to such deviation at the time of submission and the Consultant has given written approval to the specific deviation. Any acceptance by the Consultant does not relieve the General Contractor from responsibility for errors or omissions in the Shop Drawings.

ARTICLE 6 - LAYING OUT WORK

6.1 The General Contractor will secure all data at the site of the building such as grades of lot, convenience of receiving and sorting material, location of public services, and other information which will have a bearing proposals or on the execution of the Work and shall address these issues in the preparation of scopes of work for the Subcontract bid packages. No allowance shall be made for failure of the General Contractor to obtain such site information prior to submitting their proposal or to include such information in the Subcontract bid packages, and no adjustment to the General Contractor's Contract amount or stipulated time for completion shall be allowed when due to failure by the General Contractor to do so.

6.2 The General Contractor shall be responsible for all lines, levels and measurements of all Work executed under the Contract. The General Contractor shall verify the figures before laying out the Work and will be held responsible for any error resulting from failure to do so. Working from lines and levels established by the property survey or by other Contract Documents, and as shown in relation to the Work, the General Contractor will establish and maintain bench marks and other dependable markers to set lines and levels for Work at each area of construction and elsewhere on the site as needed to properly locate each element of the entire Project. The General Contractor shall calculate and measure from the bench marks and dependable markers required dimensions as shown (within recognized tolerances if not otherwise indicated), and shall not scale drawings to determine dimensions. The General Contractor shall advise Sub-contractors and trades persons performing Work of marked lines and levels provided for their use in layout work. The General Contractor shall verify layout information shown on drawings as required for the Work.

6.3 The General Contractor shall be responsible for coordination of the installation of all elements of the Work, including preparation of coordination drawings if required by the Contract Documents or deemed necessary by the General Contractor for performance of the Work.

6.4 If any encroachments are made by the General Contractor or any Sub-contractor on any adjacent property, the General Contractor shall, at the General Contractor's expense, and within thirty (30) Calendar Days after written notice from the Owner or the Consultant, correct any encroachments and obtain approval from the owner of such adjacent property for any encroachments that cannot be feasibly corrected. The General Contractor shall not be entitled to any adjustment to the Contract Amount or the Contract Time as a result of any such encroachment or the correction thereof.

ARTICLE 7 - PLANS, DRAWINGS, SPECIFICATIONS AND RECORD DRAWINGS

7.1 Unless otherwise provided in the Contract Documents, the Owner will furnish the General Contractor free of charge one electronic or reproducible copy of the Drawings and Specifications for execution of the Work. The General Contractor shall pay for the cost of duplication of all sets required over and above this amount.

7.2 The cost of additional plans, specifications and official contract documents for use by Sub-contractors for bidding and for construction shall be borne by the General Contractor or by the Sub-contractors. Arrangements for orders and payment for plans, specifications and other contract documents must be made with Lynn Imaging, Lexington, Kentucky (<http://www.ukplanroom.com>) or by phone at 1.800.888.0693 or 859.255.1021) before a set of documents will be issued.

7.3 The General Contractor shall keep one copy of all Contract Documents, including Drawings, Specifications and Shop Drawings on the site, in good order. A qualified representative of the General Contractor shall record on these documents, from day to day as Work progresses, all changes and deviations from the Contract Documents. Prior to Substantial Completion, the General Contractor shall complete and turn over to the Consultant the As-Built drawings, with a digital copy (in PDF format) submitted to the Owner simultaneously. The As-Built drawings shall consist of a set of drawings which indicate all field changes that were made to adapt to field conditions, changes resulting from Change Orders and all concealed and buried installations of piping, conduit and utility services. All buried and concealed items, both inside and outside the facility, shall be accurately located on the As-Built drawings as to depth and in relationship to not less than two permanent features such as interior or exterior wall faces. The As-Built drawings shall be clean and all changes, corrections and dimensions shall be given in a neat and legible manner in a contrasting color. For any changes or corrections in the Work which are made subsequent to the Substantial Completion Inspection, revisions shall be made to the As-Built drawings and submitted to the Consultant prior to final payment. Approval of the final payment request shall be contingent upon compliance with these provisions.

7.4 All drawings, specifications and copies thereof, furnished by the Consultant to the Owner, are the property of the University of Kentucky. They shall not be used by the Consultant, General Contractor, or any Sub-contractor or Supplier on any other Project.

ARTICLE 8 - TEMPORARY UTILITIES

8.1 The General Contractor shall provide and pay for, unless modified in the Special Conditions, all temporary conveniences including, but not limited to, wiring, lighting, power and electrical outlets, heat, water, and sanitary facilities required for construction. In the event the Owner elects to make available, at no cost to the General Contractor, the electric power required for construction activities, the electric power supplied shall not be utilized as a means to provide temporary heat or for welding.

8.2 The General Contractor is responsible for paying all utility costs, whether the costs are from an outside utility company or from the University, for utility services used in the course of completing the Work. The General Contractor shall provide temporary heating, ventilation, telephones, water, electricity, portable gas, lighting for the Work, safety lighting, security lighting, and trash removal/dumpster service for both General Contractor and Sub-contractor use during the Project. Work and safety lighting shall be provided continuously during working hours. Security lighting shall be provided at all hours of darkness.

ARTICLE 9 - MATERIALS, EQUIPMENT, APPLIANCES, AND EMPLOYEES

9.1 Unless otherwise provided in the Contract Documents, the General Contractor shall provide and pay for all materials, labor and personnel, tools, equipment, construction equipment and machinery, utilities, supplies, appliances, transportation, taxes, temporary facilities, licenses, permits and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and the proper execution and completion of the Work safely, without damage to persons and property, and in compliance with all applicable law. The General Contractor shall furnish, erect, maintain, and remove at the completion of the Contract, all temporary installations as may be required during the construction period.

9.2 Immediately following the execution of each of the sub-contracts, the General Contractor shall determine the source of supply for all materials required under that sub-contracts and the length of time required for their delivery, and shall assure that orders are placed for such materials in sufficient time to assure delivery to the site so that such materials are available to be incorporated into the Work when needed to comply with the schedule of Work.

9.3 The General Contractor shall immediately notify the Consultant in writing of any known problems with the procurement, fabrication or ordering of any materials. Unless changes are approved in writing by the Consultant, the General Contractor will not be excused for delays in securing materials specified.

9.4 The General Contractor or Sub-contractors shall not place purchase orders or issue contracts for materials, supplies, equipment and services necessary to complete this Project using the name of the University of Kentucky. All orders placed by the General Contractor that are related to this Project must use the name of the General Contractor or Sub-contractor placing the order. The use of the University of Kentucky's name for ordering purposes is strictly prohibited. Payment for all goods and services required for the completion of the Work is the sole responsibility of the General Contractor. Any invoices received at the University that are related to this Project will be immediately forwarded to the General Contractor. Copies of these invoices will be made and placed in the General Contractor's file and proof must be provided that these invoices have been paid in full prior to the processing of the next scheduled application for progress payment.

9.5 The route for delivery of all materials to the Project shall be coordinated with the Owner's Project Manager.

9.6 The General Contractor shall be responsible for the proper and adequate storage of materials and equipment. Unless otherwise provided in the Contract Documents, all materials shall be of good quality and new. Workmanship and materials supplied and incorporated into this Work shall be of first quality. The General Contractor, if required, shall furnish satisfactory evidence as to the kind and quality of materials.

9.7 The General Contractor shall at all times enforce strict discipline and good order among all employees and Sub-contractors. The conduct of all individuals performing Work or operations related to the Work is the responsibility of the General Contractor. The consumption of alcohol or drugs on the job by any workers is strictly prohibited. Any individual apprehended under the influence of alcohol or drugs on the premises at any time shall be subject to automatic removal from the Project by the General Contractor, the Consultant or the Owner. Improper conduct of any kind will not be permitted and may result in the offending individual, Sub-contractor or General Contractor being barred from the Owner's premises. The General Contractor shall not permit the employment on the Project of any person unfit or not skilled in the Work assigned.

ARTICLE 10 - ROYALTIES AND PATENTS

10.1 The General Contractor shall pay all royalties and license fees. If a particular process, product or device is specified in the Contract Documents and it is known to be subject to patent rights or copyrights, the existence of such rights shall be disclosed in the Contract Documents and the General Contractor is responsible for payment of all associated royalties. The General Contractor hereby agrees to indemnify, defend and hold the Owner, and any subsidiary, parent, or affiliates of the Owner, or other persons or entities designated by the Owner, and their respective directors, officers, agents, employees and designees (collectively, the "Indemnities") harmless from all losses, claims, liabilities, injuries, damages and expenses, including attorneys' fees and legal expenses, that the Indemnities may incur as a result of the General Contractor's failure to strictly comply with its obligations under this Paragraph 10.1.

ARTICLE 11 - SURVEYS, PERMITS, REGULATIONS, AND STANDARD CODES

11.1 The Owner will furnish only such surveys that are specifically required by the Contract Documents. Approvals, assessments, and easements for permanent structures or permanent changes in existing structures shall be secured and paid for by the Owner, unless otherwise specified. All required utility tap-on fees shall be secured and paid for by the General Contractor, or included in a sub-contract, including the Lexington-Fayette Urban County Government (LFUCG) sewer tap-on fee. All construction permits, where required by local ordinances, except excavation permit, shall be obtained by the General Contractor, but no fee shall be charged to or paid by the General Contractor as the Owner is exempt from such charges. A Contractor's license fee for doing business in the locale, if applicable, shall be paid for by the General Contractor.

11.2 All branches of Work shown on the plans and specifications shall be executed in strict compliance with all state and federal regulations and codes, with all national codes, and with the requirements of both ADA and JCAHO when applicable.

11.3 The Contractor, on projects disturbing 1 acre or more, including grading, clearing, excavation, or other earth moving process, shall assure full compliance with the requirements of the KYR10 and shall:

11.3.1 File a Notice of Intent (KPDES Form NOI-SW) with the Kentucky Division of Water and copy the Owner prior to the start of any excavation, grading or site development work.

11.3.2 Implement the Stormwater Pollution Prevention plan, maintain Best Management Practices (BMP) structures and devices and continuously update the written Stormwater Pollution Prevention Plan.

11.3.3 Inspect and document the condition of runoff controls every 7 days.

11.3.4 Submit a signed Notice of Termination (NOT) form to Kentucky Division of Water after the site has been finally stabilized.

11.3.5 See "Design Guidelines" in the Owners Design Standards 00020S07 Storm Water Information for Consultants and Contractors.

11.3.6 Failure to timely comply with requirements of KPDES shall not be the basis for any additional compensation nor for adjustment of contract time. Any fines or other costs resulting from failure to comply, levied against the Owner will be assessed against the General Contractor's funds.

11.4 Reference to standards, codes, specifications, and regulations refer to the latest edition of printing in effect at the date of issue shown in the Contract Documents unless another date is implied by the suffix number of the standard.

11.5 The General Contractor shall furnish a final occupancy permit from the proper agency or agencies as required.

11.5 The General Contractor shall, by provision within each applicable sub-contract or by inclusion in the lump sum fee proposed to the Owner, insure the payment of all sales, consumer, use and similar taxes for materials, equipment and supplies incorporated into the Work, by unless otherwise specified in the bid documents.

ARTICLE 12 - PROTECTION OF WORK, PROPERTY, AND PUBLIC

12.1 The General Contractor shall continuously maintain adequate protection of all Work from damage and shall protect the Owner's property from injury or loss arising in connection with this Contract. Except as otherwise covered by Builder's Risk insurance, the General Contractor shall pay for any such damage, injury, or loss, except such as may be directly due to errors in the Contract Documents or caused by agents or employees of the Owner. The General Contractor shall adequately protect adjacent property as provided by law and the Contract Documents.

12.2 In an emergency affecting the safety of life, or of the Work, or of adjoining property, the General Contractor, without special instruction or authorization from the Consultant or the Owner, is obligated to act to prevent such threatened damage, loss or injury.

12.3 The General Contractor shall maintain fire protection as required by the Kentucky Building Code. Access to the Project site and surrounding buildings for local fire truck access must be maintained during construction. The General Contractor shall maintain construction to allow access to new, existing or temporarily relocated standpipes, fire hydrant connections and fire alarm communication panels pursuant to Section 3018.8 of the Kentucky Building Code. If the General Contractor utilizes the Owner's fire protection equipment, the General Contractor shall replace any such materials lost, consumed or misplaced during the Contract period. The General Contractor is responsible for any false alarms caused by dust created in the Work area or dust traveling to areas beyond the Work area due to inadequate dust protection barriers. Should there be a need for any existing or newly installed fire alarm system, or parts of a system that requires service, to be removed from service or disconnected, prior approval must be obtained from the Owner and the General Contractor shall immediately provide alternate protection such as a fire watch until such systems are returned to

full normal operations. When work or service is completed on a disabled fire alarm system, the Owner shall be immediately notified so the system can be placed in service.

12.4 The General Contractor and Sub-contractors are responsible for the security of their own materials, tools and equipment at the Project site.

12.5 The General Contractor shall provide to the Owner's Project Manager a key to General Contractor's field office or job trailer.

ARTICLE 13 - BLASTING

13.1 Blasting is not allowed unless permission is granted in the Special Conditions. Should blasting be allowed by the Special Conditions, it shall be completed in accordance with all laws, regulations, ordinances and instructions contained in the Special Conditions.

ARTICLE 14 - CONSTRUCTION AND SAFETY DEVICES

14.1 The General Contractor shall provide safety controls for protection of the life and health of employees and visitors. The General Contractor will utilize precautionary methods for the prevention of damage to property, materials, supplies, and equipment, and for avoidance of work interruptions in the performance of this Contract. In order to provide such safety control, the General Contractor shall comply with all pertinent provisions of the Kentucky Fire Prevention Code, Kentucky Building Code, Kentucky Labor Cabinet's Division of Occupational Safety and Health Program Construction Standards and Federal Occupational Safety and Health (Construction) Standards that are in effect at the time the Contract is entered into and during the period in which the Contract is to be performed.

14.2 The General Contractor shall provide a written safety program which includes all pertinent written specialty standards such as, but not limited to, Control of Hazardous Energy Sources (Lockout/Tagout), Hazard Communications Program, First Aid, Blood Borne Pathogen Program, Respirator Use Program and Hearing Conservation Program. The General Contractor shall require all Sub-contractors to have an effective written safety program or be required to follow the General Contractor's written safety program.

14.3 The General Contractor shall maintain an accurate record of and shall report to Kentucky Labor Cabinet's Division of Occupational Safety and Health in the manner and on the forms prescribed by that Division, exposure data and all accidents resulting in death, traumatic injury, occupational disease. The General Contractor shall maintain an accurate record of and shall report to the Owner's Project Manager, any damage to property, materials, supplies, and equipment incident to Work under this Contract.

14.4 The Kentucky Labor Cabinet's Division of Occupational Safety and Health may notify the General Contractor of any noncompliance with the foregoing provisions. The General Contractor shall, upon receipt of such notice, immediately correct the cited conditions. Notice delivered to the General Contractor or the General Contractor's representative at the site of the Work shall be deemed sufficient for this purpose. If the General Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the Work until satisfactory or corrective action has been taken. Failure or refusal to comply with the order will be grounds for reducing or stopping all payments due under the Contract to the General Contractor. No part of the construction time lost due to any such stop order shall be cause for, or the subject of a claim for, extension of time or for additional costs or damages by the General Contractor.

14.5 The General Contractor or any Sub-contractor shall immediately contact the University of Kentucky's Department of Occupational Health and Safety through the Owner's Project Manager should they be selected for an inspection by the Kentucky Occupational Safety and Health Compliance Division.

14.6 Compliance with the provisions of the foregoing sections by Sub-contractors shall be the responsibility of the General Contractor.

14.7 Nothing in the provisions of this Article 14 shall prohibit the U.S. Department of Labor or the Kentucky Department of Labor Division of Occupational Safety and Health from enforcing pertinent

occupational safety and health standards as authorized under Federal or State Occupational Safety and Health Standards.

14.8 The General Contractor shall take all necessary precautions for the safety of employees on the Work, and shall comply with all applicable provisions of federal, state, and municipal safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the Work is being performed. If the General Contractor or any Sub-contractor has questions related to the health or safety required by their written safety program, they should contact the Kentucky Labor Cabinet Occupational Safety and Health Program Division of Education and Training. The General Contractor shall designate a responsible member of the on-site Work force as the safety officer and shall report to the Consultant and to the Owner the name of the person selected. The duties of the safety officer include the enforcement of safety regulations.

ARTICLE 15 - HAZARDOUS MATERIALS

15.1 If the General Contractor encounters material reasonably believed to be or suspected to be asbestos containing material, lead, polychlorinated biphenyls (PCBs), fluorescent light bulbs and ballasts, mercury or other hazardous material, the following procedures must be followed:

15.1.1 The General Contractor shall immediately stop Work in the affected area and notify the Owner's Project Manager. The Owner's Project Manager will contact the Owner's Environmental Health and Safety unit to arrange for collection of samples, review of existing data, or other testing necessary to confirm the presence of hazardous materials. The Owner's Project Manager will notify the General Contractor in writing of the results. Until that notification is received, the Work must not continue in the affected area.

15.1.2 If the material is confirmed to be asbestos, lead, polychlorinated biphenyls (PCBs), fluorescent light bulbs and ballasts, mercury or other hazardous material, the Owner will take appropriate action to remove the material before the General Contractor can continue Work in the affected area.

15.1.3 The General Contractor shall not be required to perform any Work related to asbestos, lead, polychlorinated biphenyls, or other hazardous material. The General Contractor is advised that certain classes of building materials (thermal system insulation, sprayed or troweled surfacing materials, and resilient flooring) installed before 1981 are required by law to be treated as asbestos containing until proven otherwise. These presumed asbestos containing materials must not be disturbed without confirmation from the Owner that asbestos is not present.

15.2 The Owner, the General Contractor, and Sub-contractors will be under the requirements of the OSHA Hazard Communication Standard (29) CFR 1910.1200. The General Contractor and Sub-contractors must provide their own written Hazard Communication Program. The Hazard Communication Standard must include: (1) A list of the hazardous chemicals to which the General Contractor's employees may be exposed; (2) Statement of the measures that General Contractor's employees and Sub-contractors may take to lessen the possibility of exposure to the hazardous materials; (3) The location of and access to the MSDS's related to the hazardous chemicals located in the Work area; (4) Procedures that the General Contractor's employees and Sub-contractors are to follow if they are exposed to hazardous chemicals above the Permissible Exposure Limit (PEL). Material Safety Data Sheets (MSDS) may be reviewed upon request by the General Contractor or any Sub-contractor as they pertain to the Work areas of the Project. Photocopies of the MSDS's may be made by General Contractor at its expense.

15.3 The General Contractor and Sub-contractors shall provide the Owner with a list of any hazardous materials that will be used on the job site that may be exposed to the Owner's employees. The General Contractor and Sub-contractors shall provide the Owner with copies of Material Data Sheets for materials to be used.

15.4 It is the policy of the Owner that PCB containing equipment will be treated by the General Contractor and the Owner in a manner that conforms to the intent of all applicable laws and regulations (primarily 40 CFR Part 761). The following procedures shall be followed by the General Contractor and Sub-contractors while present on the Owner's Project or other property: (1) Only authorized, trained personnel may inspect, repair, or maintain PCB transformers; and (2) No combustible materials may be stored within a PCB transformer room or

within five meters of a PCB transformer. Such materials include, but are not limited to, paints, solvents, plastic, paper, and wood. The General Contractor shall not use rooms containing PCB transformers for storage rooms, staging areas, job site offices or break rooms. Violation of this policy may be grounds for dismissal of the offending General Contractor and/or Sub-contractor from the Project. All PCB transformers at the University of Kentucky are identified by a PCB label as defined in federal regulations. If the General Contractor should have a question as to the location of a PCB transformer, it should contact the Owner's Project Manager.

15.5 The General Contractor shall ensure that NO asbestos-containing materials (including but not limited to: drywall, joint compound, roof mastic and floor tile adhesive) will be install on any University project without prior written approval of the University's Environmental Health and Safety Division. Additionally, the General Contractor shall submit MSDS sheets and have prior approval before installing any materials that contains hazardous substances or could pose an environmental hazard. If any environmental hazardous materials are installed without written approval of the University, the General Contractor will be responsible for all material replacement cost, all removal and all other associated damages. Any materials removed shall be taken out in accordance with all applicable federal, state and local regulations.

ARTICLE 16 - INSPECTION OF WORK

16.1 Inspections, tests, measurements or other acts of the Consultant are for the sole purpose of assisting the Consultant in determining if the Work, materials, rate of progress, and quantities comply with the Contract Documents. These acts or functions shall not relieve the General Contractor from performing the Work in full compliance with the Contract Documents, nor relieve the General Contractor from any of the responsibility for the Work assigned to it by the Contract Documents. No inspection by the Consultant shall constitute or imply acceptance. Approval of material is general and shall not constitute waiver of the Owner's right to demand full compliance with Contract Documents.

16.2 All Work completed and all materials incorporated for the Project are subject to inspection by the Owner, the Consultant or their representatives to determine conformance with the Contract Documents. The Owner, Consultant and their representatives shall at all times have access to the Work whenever it is in preparation or progress. The General Contractor shall provide, at no additional cost to the Owner, any facilities necessary for sufficient and safe access to the Work to complete any inspections required. The Consultant shall be given timely notification in order to arrange for the proper inspections to be performed on any Work outside of the normal working day or week. If the Consultant provides the General Contractor with a list of construction milestones that require inspection, the General Contractor shall provide the Consultant with at least five (5) Business Days written notice prior to the commencement of Work with respect to such milestone in order to permit the Consultant time to coordinate an inspection of the commencement of the applicable Work.

16.2.1 Normal Work hours are defined as a period between 7:00 a.m. and 5:00 p.m. Monday through Friday. The General Contractor shall notify the Owner's Project Manager at least one working day prior to performance of any Work for permission to do any Work during non-normal Work hours.

16.3 If this Contract, the Specifications, the Consultant's instructions, laws, ordinances, or any public authority require any Work to be specially inspected, tested or approved, the General Contractor shall give the Consultant timely notice of the readiness of the Work for inspection. The Consultant shall promptly make all required inspections. If any portion of the Work should be covered contrary to the request of the Consultant, or to the requirements specifically expressed in the Contract Documents, the Work must be uncovered for inspection and observation and shall be uncovered and replaced at the General Contractor's expense.

16.4 If any other portion of the Work has been covered, which the Consultant has not specifically requested to observe prior to being covered, the Consultant, with the Owner's approval, may request to see such Work and it shall be uncovered by the General Contractor. If such Work is found to be in accordance with the Contract Documents, the cost of uncovering and replacement shall be charged to the Owner by appropriate Change Order. If such uncovered Work is not in accordance with the Contract Documents, the General Contractor shall pay all costs for uncovering and replacement of such Work.

ARTICLE 17 - SUPERINTENDENT - SUPERVISION

17.1 The General Contractor shall completely and thoroughly direct and superintend the Work in accordance with the highest standard of care for the General Contractor's profession so as to ensure expeditious, workmanlike performance in accordance with requirements of the Contract Documents. Except as otherwise dictated by specific requirements of the Contract Documents, the General Contractor shall be solely responsible for and have control over all construction means, methods, techniques, sequences and procedures. The General Contractor shall be responsible for the acts and omissions of all Sub-contractors and persons directly or indirectly employed by the General Contractor in the completion of the Work. The General Contractor shall be responsible for coordinating and scheduling all portions of the Work unless the Contract Documents give other specific instructions. The General Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by the activities of the Consultant in the administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the General Contractor.

17.2 The General Contractor shall have a competent superintendent on the Project site at all times during the process of the Work. The superintendent shall have authority to act on the General Contractor's behalf with regard to all aspects of performance of this Contract. The superintendent shall have such assistants with individual specialized competencies as may be necessary to fully understand and oversee all aspects of the Work. The General Contractor shall also provide administrative, supervisory and coordinating personnel required to fully perform the Work and for interfacing the Work with other work of the Project. The superintendent and all assistants shall be physically fit for their work and capable of going to all locations where Work is being performed. A communication given to the superintendent shall be binding on the General Contractor. Immediately after the award of Contract, the General Contractor shall submit to the Consultant a list of General Contractor's employees and consultants, including names, positions held, addresses, telephone numbers and emergency contact numbers.

17.3 The superintendent assigned shall not be changed except under the following circumstances: (1) Where the superintendent ceases to be employed by the General Contractor, in which case the General Contractor shall give timely written notice to the Owner of the impending change of the superintendent and a reasonable explanation for the change; or (2) Where the Owner or the Consultant have reasonable grounds for dissatisfaction with the performance of the superintendent and give written notice to the General Contractor of the grounds. In either case, the General Contractor shall obtain prior written approval from the Owner of the qualifications of the proposed replacement superintendent. Such prior approval will not be unreasonably withheld.

17.4 If the Owner or Consultant determines that the superintendent is not performing, or is incompetent to perform the required Work, the Owner may direct the General Contractor to remove the superintendent from the Project and replace the superintendent with an employee who has the necessary expertise and skills to satisfactorily perform the Work.

ARTICLE 18 - CHANGES IN THE WORK

18.1 The Owner, at any time after execution of the Contract, may make changes within the general scope of the Contract or issue additional instructions, require additional Work, or direct the deletion of Work. The Owner's right to make changes shall not invalidate the Contract or relieve the General Contractor of any obligations under the Contract Documents. All such changes to the Work shall be authorized in writing by Change Order and shall be executed under the conditions of the Contract Document. Any adjustment of the Contract Amount or Time of Completion, as may be appropriate, shall be made only at the time of ordering such change. Change order proposals based on a reservation of rights, whether for additional compensation to be determined at a later date or for an extension of time to be determined at a later date, will not be considered for approval and shall be returned to the General Contractor without action.

18.2 The cost or credit resulting from a change in Work shall be determined in one or more of the following ways:

18.2.1 By unit prices named in the Contract or additional unit prices subsequently agreed upon;

18.2.2 By agreement on a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

18.2.3 By an amount agreed upon by the General Contractor and the Owner as a mutually acceptable fixed or percentage fee.

18.3 All lump sum proposals shall include a detailed cost breakdown satisfactory to the Consultant and to the Owner for each component of Work indicating both labor and material costs. In computing labor costs, the hourly labor rates shall not exceed the combined amount for base rate plus fringe benefits stated in the Prevailing Wage Determination applicable to the Project unless some other mutually agreeable combined hourly labor rate plus fringe benefits is arrived at by negotiation with the Owner based on presentation of acceptable documentation by the General Contractor that the published rate would impose an unreasonable burden on the General Contractor and/or Sub-contractor(s). For the purposes of this Article, the term "fringe benefits" shall mean those funds transferred irrevocably to a third party for payment/distribution. In addition, there may be added by the General Contractor and/or Sub-contractor an amount agreed upon, but not to exceed fifteen percent (15%) of the actual cost, for overhead and profit. This cost breakdown shall be submitted to the Consultant promptly and with a goal of seven (7) Calendar Days or less after receipt of the proposal request.

18.4 If none of the above methods are mutually agreed upon or if the General Contractor does not respond promptly, a change may be made by unilateral determination by the Owner and/or the Consultant of reasonable costs or savings attributable to the change, including a reasonable allowance for overhead and profit. If this method is utilized, the General Contractor shall promptly proceed with the Work involved in the change upon receipt of a written order signed by the Owner. In such case, the General Contractor shall keep and present an itemized accounting of labor, equipment, material and other costs, in such form as may be prescribed by the Consultant.

18.5 In determining the cost or credit to the Owner resulting from a change, the allowances for all overhead (including home office and field overhead) and profit combined, shall be negotiated and shall not exceed (15%) fifteen percent.

18.6 In all cases where Change Orders are determined by unit prices set forth in the Contract Documents, no amount is to be added for additional overhead and profit.

18.7 The General Contractor shall keep and present in such form as the Consultant may direct, a correct account of all items comprising the net cost of such Work, together with vouchers. The determination of the Consultant and/or the Owner shall be final upon all questions of the amount and cost of extra Work and changes in the Work, and it shall include in such cost, the cost to the General Contractor of all materials used, the cost of all labor (including social security, old age and unemployment insurance, fringe benefits to which the employee is entitled, and Workers Compensation insurance), and the fair rental of all machinery used upon the extra Work, for the period of such use, which was upon the Work before or which shall be otherwise required by or used upon the Work before or after the extra Work is done. If the extra Work requires the use of machinery not already on the Project site, or to be otherwise used upon the Work, then the cost of transportation of such machinery to and from the Project site shall be added to the fair rental value. Transportation costs shall not be allowable for distances exceeding one hundred (100) miles.

18.8 The General Contractor shall not include or allow to be included in the cost of change in the Work any cost or rental of small tools, or any portion of the time of the General Contractor or the superintendent, or any allowance for the use of capital, or for the cost of insurance or bond premium or any actual or anticipated profit, or job or office overhead. These items are considered as being covered under the added amount for general overhead addressed in Article 18.3

18.8.1 The Owner will not pay claims made for lost opportunities, claims made for lost production or production inefficiencies or claims made that are formula based.

18.9 Pending final determination of value, partial payments on account of changes in the Work may be made on recommendation of the Consultant. All Change Orders shall be in full payment and final settlement of

all claims for direct, indirect and consequential costs, including all items covered and affected. Any such claim not presented by the General Contractor for inclusion in the Change Order shall be waived.

18.10 The Consultant may authorize minor changes in the Work which do not involve additional cost or extension of the Contract Time, and which are not inconsistent with the intent of the Contract Documents. Such changes shall be made by an ASI issued by the Consultant, and shall be binding on the Owner and the General Contractor. The General Contractor shall carry out such orders promptly. If the General Contractor should claim that an ASI involves additional cost or delay to the completion of the Work, the General Contractor shall give the Consultant written notice thereof within ten (10) Calendar Days after receipt of the written ASI. If this notification does not occur, the General Contractor shall be deemed to have waived any right to claim or adjustment to the contract sum or to the contract completion time.

18.10.1 If the General Contractor claims that any instructions by the Consultant involve additional cost or time extension, the General Contractor shall give the Consultant written notice thereof within ten (10) Calendar Days after the receipt of such instructions and before proceeding to execute the change in Work. The written notice shall state the date, circumstances, whether a time extension will be requested, and the source of the order that the General Contractor regards as a Change Order. Unless the General Contractor acts in accordance with this procedure, any oral order shall not be treated as a change and the General Contractor hereby waives any claim for an increase of the Contract amount or extension of the contract time.

18.11 Requests for extension of time related to changes in the Work shall be submitted in accordance with the requirements of Article 21 of these General Conditions

ARTICLE 19 - RULES AND MEASUREMENTS FOR EXCAVATION

19.1 If applicable, the following Rules and Measurements shall apply to the use of Unit Prices for the excavation portion of the Work:

19.1.1 Except as provided in this Article 19 for arbitrary measurements, the quantity of excavation shall be its in-place volume before removal.

19.1.2 No allowance will be made for excavating additional material of any nature taken out for the convenience of the General Contractor beyond the quantity computed under these "Rules and Measurements."

19.1.3 The quantities of excavation shall be computed from instrument readings taken by the Consultant's representative in vertical cross sections located at such intervals that will assure accuracy.

19.1.4 "Trench Excavation" for pipes shall arbitrarily be assumed to be two feet (2') wider than the outside diameter of the pipe barrel and with sides vertical.

19.1.5 The quantities shall be computed from plan size, or if there are no drawings, from actual measurements of the Work in place.

19.1.6 Each unit price shall cover, among other things, engineering (surveying) costs and keeping excavating dry.

19.1.7 Earth excavation for structures will be measured between the vertical planes passing 18 inches beyond the outside of the footings and from the surface of the ground to the neat lines of the bottom of the structure.

19.1.8 Rock excavation for structures will be measured between the vertical planes passing 18 inches beyond the outside of the footings and from the surfaces of the rock to the neat lines of the bottoms of the structures or the actual elevation of the rock ledge.

19.1.9 Rock excavation for pipelines trenches, unless otherwise provided for in the Specifications, shall be measured as follows: An arbitrary width of 18 inches plus the nominal diameter of the pipe multiplied by the depth from the surface the rock to six (6) inches below the invert for pipe 24 inches in diameter or less and eight (8) inches below the invert for all pipe greater than 24 inches in diameter. No additional compensation will be

allowed for excavation for bell holes, gates or other purposes. The measurement of rock excavation for manholes shall be in accordance with Section 19.1.8 above.

19.1.10 Unclassified excavation shall be measured in the same manner as earth excavation.

ARTICLE 20 - CONCEALED CONDITIONS

20.1 The Contract Drawings show the approximate location of the existing and new utility lines. These lines have been identified and located as accurately as possible using available information. The General Contractor is responsible for verifying all actual locations. If utilities require relocation or rerouting that is not shown or indicated to be relocated or rerouted, the General Contractor shall contact and cooperate with the Consultant to make the required adjustments. Any request for change in the Contract Amount by the General Contractor shall be made pursuant to Article 18 of the General Conditions.

20.2 If any charted or uncharted utility service is interrupted by activities of the General Contractor or the General Contractor's Sub-contractor(s) for any reason, the General Contractor shall work continuously to restore service to the satisfaction of the Owner.

20.2.1 If any charted utility service, or any uncharted utility service the existence of which could have been discovered by careful examination and investigation of the site of the Work by the General Contractor, is interrupted by activities of the General Contractor or the General Contractor's Sub-contractor(s) for any reason, the entire cost to restore service to the satisfaction of the Owner shall be paid by the General Contractor. Should the General Contractor fail to proceed with appropriate repairs in an expedient manner, the Owner reserves the right to have the work/repairs completed and the cost of such work/repairs deducted from the monies due or to become due to the General Contractor pursuant to Article 22 of the General Conditions.

20.3 The General Contractor shall promptly, but in no case more than ten (10) Calendar Days from the time of discovery, and before the conditions are disturbed, notify Consultant in writing of:

20.3.1 Subsurface or latent physical conditions or any condition encountered at the site which differ materially from those indicated in the Contract Documents and which were not known by General Contractor or could not have been discovered by careful examination and investigation of the site of the proposed Work;

20.3.2 Unknown and unexpected physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered in the locale or generally recognized as inherent in the Work provided for in this Contract or,

20.3.3 Concealed or unknown conditions in an existing structure which are at variance with the conditions indicated by the Contract Documents, which are of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the Work provided for in this Contract, and which were not known by the General Contractor and could not have been discovered by careful examination and investigation of the site of the Work.

20.4 The Consultant shall promptly investigate the conditions discovered. If the Consultant finds that conditions, which are materially different from those ordinarily encountered and generally recognized as inherent in the Work provided for in this Contract, were not known by the General Contractor, and could not have been discovered by careful examination and investigation of the site of the Work, have caused or would cause a material increase or decrease in the General Contractor's cost of construction or the time required for performance of any part of the Work under this contract, the Consultant will recommend and the Owner will make an equitable adjustment in the Contract Amount and/or the time allotted for performance in the Contract Documents. Failure by the General Contractor to provide written notice to the Owner of such claims for additional compensation or time for performance within ten (10) Calendar Days of discovery of such conditions shall constitute a waiver by the General Contractor of the right to make such claims. The Owner will not pay claims made for lost opportunities, claims made for lost production or production inefficiencies or claims made that are formula based.

20.5 If the Consultant determines that changed conditions do not exist or are not materially different and no adjustment in the Contract Amount or time is warranted, the General Contractor shall continue performance of the Contract as directed by the Consultant. No claim by the General Contractor under this clause shall be allowed unless the required written notice is given and the Consultant is given adequate opportunity to investigate the conditions encountered prior to disturbance. The failure of the General Contractor to give the Consultant proper notice of a differing site condition shall not affect the Owner's right to an equitable adjustment of the contract price or time if there is a decrease in the Contract Amount or time required to perform the Work.

ARTICLE 21 - DELAYS AND EXTENSION OF TIME

21.1 It is agreed that time is of essence for each and every portion of this Contract and, where additional time is allowed for the completion of any part of the Work under this Contract, the new time limit fixed by such extension shall be of the essence of this Contract. An extension of time shall not be cause for extra compensation under this Contract, except as set forth below.

21.2 The General Contractor will, subject to the provisions of Articles 21.8, 21.8.1 and 21.9 below, be granted an extension of time and/or relief from liquidated damages when the delay in completion of the Work is due to:

21.2.1 Any preference, priority, or allocation order duly issued by the government;

21.2.2 Unforeseeable causes beyond the control and without the fault or negligence of the General Contractor including, but not limited to, acts of God, or of the public enemy, acts of the Owner, acts of another contractor in the performance of a contract with the Owner, floods, epidemics, quarantine restrictions, strikes, and freight embargoes. For such delays which stop all work on the Project for thirty (30) Calendar Days or more, the General Contractor shall be authorized to remove its people from the site and return when the normal progress of the work may continue.

21.3 Requests for extensions of time and/or relief from liquidated damages, except for weather related claims, shall be made in writing not later than ten (10) Calendar Days after the beginning of the delay. Claims for extension of time or relief from liquidated damages shall be stated in numbers of whole or half Calendar Days.

21.4 Except as otherwise provided in the Contract Documents, extensions of the date of Substantial Completion may be granted for unusually bad weather on the Project. Unusually bad weather as used herein means weather which is beyond the normal weather recorded and expected for the locality and/or the season or seasons of the year. For the purposes of this contract, it is mutually agreed that the following chart accurately reflects the number of days in each month on which bad weather can reasonably be anticipated to impact weather sensitive construction operations, and which shall be considered by the General Contractor in the development of the Project baseline schedule.

| <i>Mean Number of Days When</i> | <i>Jan.</i> | <i>Feb</i> | <i>Mar.</i> | <i>Apr</i> | <i>May</i> | <i>Jun</i> | <i>Jul.</i> | <i>Aug</i> | <i>Sep</i> | <i>Oct</i> | <i>Nov</i> | <i>Dec.</i> |
|--|-------------|------------|-------------|------------|------------|------------|-------------|------------|------------|------------|------------|-------------|
| Max Temp 32° or Below | 9 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| Precip. Is 0.10 Inch or Greater | 7 | 6 | 9 | 7 | 8 | 8 | 8 | 6 | 5 | 5 | 7 | 7 |

For the purpose of this Contract, “Unusual Inclement Weather” will be interpreted as either 1) those days in a given month on which rainfall is 0.10 inch or more that exceed the number of days shown in the row for

“Precip” or 2) those days in a given month on which maximum temperature was 32 degrees F or below that exceed the number of days shown in the row for “Max Temp”, whichever is greater.

21.4.1 Requests for extension of time due to unusually bad weather that could not reasonably have been anticipated at the time of execution of the Contract shall be made in writing not later than the tenth day of the month following the month in which the delay occurred.

21.4.2 Requests for an extension of time due to unusually bad weather shall be considered for approval only if it is shown that a) the unusual weather event delayed work on a specific weather sensitive activity or activities that had been planned to be underway on the date(s) on which the weather event occurred, as shown in the most recent update to the Project schedule that had been submitted to the Owner prior to the date of the event, b) only if the activity or activities were on the critical path of the most recent update to the schedule and c) only if the delay to that activity or activities is shown to be the proximate cause of a corresponding delay to the projected date for Substantial Completion of the Project that was shown in the most recent update to the Project schedule. The actual dates on which the delay(s) occurred must be stated and the specific activities that were directly impacted must be identified. In the event of concurrent delays, only those activities actually impacting the Project Substantial Completion date will be considered in evaluating the merit of a delay request and in adjusting the schedule. Time extensions will not be considered if such adjustments do not exceed the total or remaining “float” associated with the impacted activities at the time of delay, nor for concurrent delays not caused by the Owner. Requests for an extension of time which are not supported by this information shall not be considered for approval by the Owner.

21.4.3 In anticipation of the possibility of delay due to unusual inclement weather, the General Contractor shall identify those activities in the baseline schedules, and those activities subsequently added to updated schedules, that might reasonably be expected to be delayed by inclement weather.

21.4.4 Delays caused by inclement weather shall be incorporated in the Project schedule when the schedule is next updated by showing actual dates and/or percent complete for those activities that were impacted by the inclement weather as well as the effects of any effort to mitigate such delays. When claims are submitted for time extensions resulting from more than one occurrence of unusually inclement weather during a month, the Project schedule shall be updated to reflect such separate events sequentially so that the impact of each subsequent occurrence is shown on an adjusted Project schedule that includes all prior claims for additional time.

21.5 Any request for an extension of time for strikes or lockouts shall be supported by a written statement of facts concerning the strike, including, but not limited to, the dates, the craft concerned, the reason for the strike, efforts to resolve the dispute, and efforts to minimize the impact of the strike on progress.

21.6 Any request for extension of time for delays in transportation or for failures of suppliers shall be supported by a written statement of facts demonstrating that the delays are beyond the General Contractor's control, including, but not limited to, the General Contractor's efforts to overcome such delays.

21.7 The time extensions for changes in the Work will depend upon the extent, if any, by which the changes cause delay in the completion of the various elements of construction. The Change Order granting the time extension may provide the Contract Completion Date will be extended only for those specific elements so delayed and that the remaining Work will not be altered, or may further provide for an equitable readjustment of liquidated damages pursuant to the new Contract completion dates.

21.8 The Contract Time will only be adjusted for causes specified above. Extensions of time will only be approved if the General Contractor can provide justification supported by the Project schedule or other acceptable data that 1) such changes are, in fact, on the critical path and extend the contractually required date of Substantial Completion, and 2) the General Contractor has expended all reasonable effort to minimize the impact of such changes on the construction schedule. No additional extension of time will be granted subsequently for claims having the basis in previously approved extensions of time.

21.8.1 In support of requests for an extension of time not caused by unusual inclement weather, and concurrently with the submittal of any such request, the General Contractor shall submit to the Consultant and

the Owner a written impact analysis showing the influence of each such request on the Project Substantial Completion date as shown in the updated Project schedule most recently submitted to the Owner. The analysis shall include a partial network diagram or “fragnet” (a sequence of new or revised activities or durations that are proposed to be added to the existing schedule) showing the critical path tasks for the project which are impacted by the event giving rise to the request or by any other concurrent event, showing any other concurrent delays, and showing the schedule both prior to and after the event. This impact analysis and the “fragnet” shall include the new activities and/or activity revisions proposed to be added to the existing schedule and shall demonstrate the claimed impact on critical path and the project substantial completion date. Time extensions will not be considered for events caused by acts of, or by failure to act by, the General Contractor or the General Contractor’s Subcontractor(s). Time extensions will not be considered in the event such adjustments do not exceed the total or remaining “float” associated with the impacted activities at the time of delay, nor for concurrent delays not caused by the Owner. In the event of concurrent delays, only that event actually impacting project substantial completion will be considered in adjusting the schedule and evaluating the merit of a delay claim. Requests for an extension of time which are not supported by this information shall not be considered for approval.

21.9 Approved extensions of time not caused by unusual inclement weather shall be incorporated in a revised schedule at the time of approval. No subsequent requests for time extension will be considered unless the previous approved time extensions have been incorporated in the Project schedule on which the requests are based. All changes and/or additions to the schedule must meet the approval of the Owner.

21.10 Except as provided in in Article 21.10.1 below, no payment or compensation shall be made to the General Contractor and extensions of the time fixed for completion of the Contract shall be the General Contractor’s sole remedy for any and all delays, hindrances, obstructions or impacts in the orderly progress of the Work, unless such delays, hindrances, obstructions or impacts are, in whole or in part, within the control of the Owner.

21.10.1 In the event the Owner orders changes to the scope of Work for the Project that are discretionary in nature and subject to the requirements of Article 21.8 and 21.8.1, can be demonstrated to extend the date of Substantial Completion of the Project, the General Contractor shall be entitled to reimbursement for job site, general conditions and staffing costs associated with such delay.

21.10.2 If delays, hindrances, impacts or obstructions of the General Contractor’s performance of the Contract are, in whole or in part, within the control of the Owner and subject to the requirements of Article 21.8 and 21.8.1, can be demonstrated to extend the date of Substantial Completion of the Project, the General Contractor shall be entitled to reimbursement for job site, general conditions and staffing costs associated with such delay.

21.10.3 Such reimbursements shall not include consequential or similar damages, exemplary damages, damages based on unjust enrichment theory, or any form of home office overhead.

ARTICLE 22 - CORRECTION OF WORK BEFORE FINAL PAYMENT

22.1 The General Contractor shall promptly remove from the site and replace any material and/or correct any Work found by the Consultant to be defective or that fails to conform to the requirements of the Contract, whether incorporated in the Work or not, and whether observed before or after Substantial or Final Completion. The General Contractor shall bear all costs of removing, replacing or correcting such Work or material including the cost of additional professional services necessary, and the cost of repairing or replacing all Work of separate contractors damaged by such removal or replacement.

22.2 The Consultant will notify the General Contractor and the Owner immediately upon its knowledge that additional services will be necessary. The Owner may consent to accept such nonconforming Work and materials with an appropriate adjustment in the Contract Amount. Otherwise, the General Contractor shall promptly replace and re-execute the Work in accordance with the Contract Documents and without expense to the Owner and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement. If the General Contractor fails to commence and continue to correct non-conforming Work within a reasonable time as determined by the Consultant, the Owner may without limitation of other rights available to the Owner and without prejudice to other remedies, take any necessary action to

make the necessary corrections. If the Owner makes required corrections for non conforming Work or materials, a Change Order will be issued reflecting an equitable deduction from the Contract Amount. This amount will be deducted from payments due to the General Contractor or, if no additional payments are due, General Contractor or the General Contractor's surety shall be responsible for payment of this amount.

ARTICLE 23 - CORRECTION OF WORK AFTER FINAL PAYMENT

23.1 Neither the final certificate of payment nor any provisions in the Contract Documents shall relieve the General Contractor of responsibility for materials and equipment incorporated into the Work that fail to meet specification requirements, or for use of faulty materials or poor quality workmanship. If within one year after the date of Substantial Completion of the Work or designated portion thereof, any of the Work is found to be defective or not in accordance with the requirements of the Contract Documents, the General Contractor shall correct it promptly after receipt of written notice from the Owner to do so. The General Contractor shall correct any defects due to these conditions and pay for any damage to other Work resulting from their use. Nothing contained in this clause shall be construed to establish a period of limitation with respect to any obligation of the General Contractor under the Contract including, but not limited to, Warranties. The obligation of the General Contractor under this section shall be in addition to and not in limitation of any obligations imposed by special guarantees or warranty required by the Contract, given by the General Contractor, or otherwise recognized or prescribed by law.

23.2 In addition to being responsible for correcting the Work and removing any non conforming Work or materials from the job site, the General Contractor shall bear all other costs of bringing the affected Work into compliance with the Contract requirements. This includes costs of any required additional testing and inspection services, Consultant's services and any resulting damages to other property or to work of other contractors or of the Owner.

23.3 If the General Contractor fails to correct nonconforming Work within a reasonable time as determined by the Consultant, the Owner may take necessary actions to make the necessary corrections. If the Owner makes required corrections for nonconforming Work or materials after Final Payment to the General Contractor, the Owner shall be entitled to recover all amounts for such corrections, including costs and attorney's fees, from General Contractor or surety.

ARTICLE 24 - TERMINATION OF CONTRACT FOR CONVENIENCE OF OWNER

24.1 The Owner, by written notice to the General Contractor, may terminate this Contract in whole or in part when it is in the interest of the Owner, at the sole discretion of the Owner. In such case, the General Contractor shall be paid for all Work in place and a reasonable allowance for profit and overhead on Work done, provided that such payments shall not exceed the total Contract price as reduced by the value of the Work as yet not completed. The General Contractor shall not be entitled to profit and overhead on Work not performed.

ARTICLE 25- OWNER'S RIGHT TO STOP WORK

25.1 If the General Contractor fails to correct defective Work as required, or persistently fails to carry out the Work in accordance with the Contract Documents, the Owner by written notice may order the General Contractor to stop the Work or any portion of the Work, until the cause for the order has been eliminated to the satisfaction of the Owner. The Consultant may stop Work without written notice for 24 hours whenever in its professional opinion such action is necessary or advisable to insure conformity with the Contract Documents. The General Contractor shall not be entitled to an adjustment in the Contract Time or Amount under this clause in the event such stoppages are determined to be the fault of the General Contractor or its Sub-contractor(s). The right of the Owner or Consultant to stop Work shall not give rise to a duty on the part of the Owner or Consultant to exercise this right for the benefit of the General Contractor or others.

ARTICLE 26 -TERMINATION OF CONTRACT FOR DEFAULT ACTION OF GENERAL CONTRACTOR

26.1 In addition to its rights under Articles 24 and 25, the Owner may terminate the contract upon the occurrence of any one or more of the following events:

26.1.1 If the General Contractor refuses or fails to prosecute the Work (or any separable part thereof) with such diligence as will insure its completion within the agreed upon time; or if the General Contractor fails to complete the Work within such time;

26.1.2 If the General Contractor is adjudged a bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if the General Contractor or a third party files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or similar laws concerning the General Contractor, or if a trustee or receiver is appointed for the General Contractor or for any of the General Contractor's property on account of the General Contractor's insolvency, and the General Contractor or its successor in interest does not provide adequate assurance of future performance in accordance with the Contract within 10 days of receipt of a request for assurance from the Owner;

26.1.3 If the General Contractor repeatedly fails to supply sufficient qualified supervision of the work, or repeatedly fails to ensure that Sub-contractors supply adequate supervision, suitable materials or equipment, or adequate numbers of skilled workmen and supervision to the Work;

26.1.4 If the General Contractor repeatedly fails to make prompt payments to Sub-contractors or suppliers at any tier, or for labor, materials or equipment;

26.1.5 If the General Contractor disregards laws, ordinances, rules, codes, regulations, orders or similar requirements of any public entity having jurisdiction;

26.1.6 If the General Contractor disregards the authority of the Consultant or the Owner;

26.1.7 If the General Contractor performs Work which deviates from the Contract Documents, and neglects or refuses to correct rejected Work; or

26.1.8 If the General Contractor otherwise violates in any material way any provisions or requirements of the Contract Documents.

26.2 Once the Owner determines that sufficient cause exists to justify the action, the Owner may terminate the Contract without prejudice to any other right or remedy the Owner may have, after giving the General Contractor and its Surety three (3) Calendar Days notice by issuing a written Declaration of Default. The Owner shall have the sole discretion to permit the General Contractor to remedy the cause for the contemplated termination without waiving the Owner's right to terminate the contract.

26.3 In the event that the Contract is terminated, the Owner may demand that the General Contractor's Surety take over and complete the Work on the Contract. The Owner may require that in so doing, the General Contractor's Surety not utilize the General Contractor in performing the Work. Upon the failure or refusal of the General Contractor's Surety to take over and begin completion of the Work within twenty (20) Calendar Days after the demand, the Owner may take over the Work and prosecute it to completion as provided below.

26.3.1 In the event that the Contract is terminated and the General Contractor's Surety fails or refuses to complete the Work, the Owner may take over the Work and prosecute it to completion in accordance with the laws of the Commonwealth, by contract or otherwise, and may exclude the General Contractor from the site. The Owner may take possession of the Work and of all of the General Contractor's tools, appliances, construction equipment, machinery, materials, and plant which may be on the site of the Work, and use the same to the full extent they could be used by the General Contractor, without liability to the General Contractor. At the Owner's sole discretion, the Owner has the right to take assignment of any or all portions of the contract work in order to prosecute the completion of the Work. In exercising the Owner's right to prosecute the completion of the Work, the Owner may also take possession of all materials and equipment stored at the site or for which the Owner has paid the General Contractor but which are stored elsewhere, and finish the Work as the Owner deems expedient. In such case, the General Contractor shall not be entitled to receive any further payment until the Work is finished.

26.3.2 If the unpaid balance of the Contract Price exceeds the direct and indirect costs and expenses of completing the Work including compensation for additional professional and Consultant services, such excess shall be used to pay the General Contractor for the cost of the Work it performed and a reasonable allowance for overhead and profit. If such costs exceed the unpaid balance, the General Contractor or the General Contractor's Surety shall pay the difference to the Owner. In exercising the Owner's right to prosecute the completion of the Work, the Owner shall have the right to exercise its sole discretion as to the manner, methods, and reasonableness of the costs of completing the Work and the Owner shall not be required to obtain the lowest figure for Work performed in completing the Contract. In the event that the Owner takes bids for remedial Work or completion of the Project, the General Contractor shall not be eligible for the award of such Contract.

26.3.3 The General Contractor shall be liable for any damage to the Owner resulting from the termination or the General Contractor's refusal or failure to complete the Work, and for all costs necessary for repair and completion of the Project above the amount of the Contract. The General Contractor shall be liable for all attorney's fees, costs and expenses incurred by the Owner to enforce the provisions of the Contract.

26.3.4 If liquidated damages are provided in the Contract and the Owner terminates the Contract, the General Contractor shall be liable for such liquidated damages, as provided for in Article 29.2 and 29.3 below, until Substantial Completion and Final Completion of the Work are achieved.

26.3.5 In the event the Contract is terminated, the termination shall not affect any rights of the Owner against the General Contractor. The rights and remedies of the Owner under this Article are in addition to any other rights and remedies provided by law or under this Contract. Any retention or payment of monies to the General Contractor by the Owner will not release the General Contractor from liability.

26.3.6 In the event the Contract is terminated under this Article, and it is determined for any reason that the General Contractor was not in default under the provisions of this Article, the termination shall be deemed a Termination for Convenience of the Owner pursuant to Article 24 and the rights and obligations of the parties shall be determined in accordance with Article 24.

ARTICLE 27 - SUSPENSION OF WORK

27.1 The Owner or the Consultant may, at any time and without cause, order the General Contractor in writing or cause the General Contractor to suspend, delay or interrupt all or any part of the Work for such period of time as the Owner may determine to be appropriate for its convenience. Adjustment may be made for any increase in the Contract time necessarily caused by such suspension or delay, in accordance with Article 21.

ARTICLE 28 - TIME OF COMPLETION

28.1 The General Contractor shall begin the Work on the date of commencement as specified in the Work Order. All time limits stated in the Contract Documents are of the essence of the Contract. The end of the Contract Time shall be the date specified on the approved certificate of Substantial Completion. The time for completion set forth in the Contract is a binding part of the Contract upon which the Owner may rely in planning the use of the facilities to be constructed and for all other purposes.

28.2 Substantial Completion is defined in Article 1.1.17 of these General Conditions. Only incidental corrective Work under punch lists and final cleaning (if required) for Owner's full use shall remain for Final Completion. The ability to occupy or utilize shall include regulatory authority approval unless regulatory approval is delayed due to actions of the Owner or the Consultant. When the Owner accepts and occupies a portion of the Project, the operation, maintenance, utilities, and insurance of that portion of the Project becomes the responsibility of the Owner.

28.3 The date of Substantial Completion shall be that date certified by the Owner, in accordance with the following procedures, that the Work is sufficiently complete to occupy or utilize as defined above.

28.3.1 When the General Contractor considers the entire Work is substantially complete as defined in Article 1.1.17 of these General Conditions, and is ready for its intended use, the General Contractor shall notify the

Consultant in writing and request an inspection. The declaration and request shall be accompanied by a list prepared by the General Contractor of those items of Work still to be completed or corrected. The failure of the General Contractor or Consultant to include any item or items, which are not completed or which need correction, on such list shall not alter the responsibility of the General Contractor to complete all Work in accordance with the Contract Documents.

28.3.2 The Consultant shall, within a reasonable time after receipt of notification from the General Contractor of a declaration of Substantial Completion and request for inspection, make such inspection. Prior to the Substantial Completion Inspection and within sufficient time to allow the Consultant's review, the General Contractor shall submit all As-Built drawings, Notice of Termination, catalog data, complete operating and maintenance instructions, manufacturer specifications, certificates, warranties, written guarantees and related documents required by the contract. The Consultant shall review said documents for accuracy and compliance with the Contract Documents and incorporate them into complete operating instructions and deliver them to the Owner.

28.3.3 If the Consultant considers the Work substantially complete, the Consultant shall recommend that the Owner prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion and the responsibilities between the Owner and General Contractor for security, maintenance, heat, utilities and insurance, if not otherwise provided for in the Contract Documents, and a tentative list of items to be completed or corrected, and shall fix the time within which the General Contractor shall complete the items listed therein. This time shall not exceed thirty (30) Calendar Days unless otherwise provided for in the Work Order. The Certificate of Substantial Completion shall be submitted to the Consultant and General Contractor for their written acceptance of the responsibilities assigned to them in the certificate. The Project shall not be deemed substantially complete until the certificate is issued. If, after making the inspection, the Consultant does not consider the Work substantially complete, the Consultant will notify the Owner and the General Contractor in writing, giving the reasons therefore.

28.4 Operation and Maintenance Manual Deliverables. In anticipation and preparation of completion of the Work and the closing out of the Project, and to facilitate training of the Owner's personnel in the maintenance and operation of the new installations, the Contractor shall comply with the requirements of Article 8.7 of the Special Conditions. (For the purposes of this article, air test and balance reports may be submitted at a later date with the request for certification of substantial completion.) These manuals shall be submitted to the Consultant for approval, and subsequently forwarded to the Owner's Project Manager by or before the time construction is 75% complete, as reflected by the Contractor's most recently submitted Application for Payment.

28.4.1 The provisions of Article 30.11 notwithstanding, if the General Contractor meets the requirements of Article 28.4 above with respect to timely submittal of approvable Operation and Maintenance manuals and provided the project construction is 1) at least 75% complete and 2) is equal to or ahead of the approved progress schedule and 3) the Work completed is in compliance with the requirements of the contract documents, the Owner, at the sole discretion of the Director, Capital Projects management Division, may reduce the retainage to not less than three percent (3%) of the current Contract Amount. In the event progress falls behind the approved progress schedule, the full 5% will immediately be reinstated by the Owner including all past retainages not held.

28.4.2 In the event the General Contractor fails to submit acceptable O&M manuals prior to reaching 75% completion, it is agreed that the Owner at its sole discretion may deduct from the current and subsequent Applications for Payment an amount deemed by the Owner to be sufficient to encourage prompt compliance with this contractual requirement, until such time as acceptable O&M manuals are received.

28.5 Project Close Out. When the General Contractor considers that all Work required by the Contract is 100% complete, including correction of any remaining punch list work or deficiencies, the General Contractor shall notify the Consultant in writing and request a final inspection. The Consultant, upon receipt of written notice from the General Contractor that the Work is complete and is ready for final inspection and acceptance, will promptly make such inspection and when the Consultant finds the Work completed and acceptable under the Contract Documents and the Contract fully performed, the Consultant will so notify the General Contractor in writing to submit, and will certify to the Owner a final Certificate for Payment submitted in accordance with

Articles 30.9 and 30.9.1 of these General Conditions. If the General Contractor does not complete the punch items within the time designated, the Owner retains the right to have these items corrected at the expense of the General Contractor including all architectural, engineering and inspection costs and expenses incurred by the Consultant and the Owner, and to deduct such costs and expenses from the funds being held in retainage. The Owner shall not be required to release the retainage until such items have been completed.

ARTICLE 29 - LIQUIDATED DAMAGES

29.1 The Owner and the General Contractor recognize and agree that time is of the essence of this Contract and that the Owner will suffer financial loss if the Work is not completed within the time specified in the Contract plus any extensions that may be allowed. The parties further recognize the delays, expense and difficulties involved in proving the actual loss suffered by the Owner should the Work not be completed on time. The Owner and the General Contractor agree on the amounts stated as liquidated damages in the Agreement. The Owner and General Contractor agree that the amount stated as liquidated damages are not intended to be penalties.

29.2 Should the General Contractor fail to satisfactorily complete the Work under Contract on or before the date stipulated for Substantial Completion, as adjusted by approved Change Orders, if any, the General Contractor will be required to pay liquidated damages to the Owner for each consecutive Calendar Day that the Owner is deprived of full use of the area beyond the date specified unless otherwise stipulated elsewhere by Owner. After the date for Substantial Completion has been certified by the Owner, the General Contractor shall cease to owe liquidated damages until the date established for Final Completion.

29.3 If Final Completion is not achieved by the date established for Final Completion, as adjusted by approved Change Orders, if any, liquidated damages in the amount stipulated in the Agreement will become due and collectable. The Contract will be considered complete and Final Completion shall be deemed to have occurred when all Work has been completed in compliance with the Contract Documents and the Certificate of Final Completion has been issued by the Owner. No deduction or payment of liquidated damages will, in any degree, release the General Contractor from further obligations and liabilities to complete the entire Contract. Permitting the General Contractor to continue and finish the Work, or any part of it, after expiration of the Contract Time, shall in no way constitute a waiver on the part of the Owner of any liquidated damages due under the Contract.

ARTICLE 30 - PAYMENT TO THE GENERAL CONTRACTOR

30.1 Payments on account of this Contract shall be made monthly as Work progresses. The General Contractor shall submit to the Consultant, in the manner and form prescribed, an application for each payment, and, if required, receipts or other vouchers showing payments made for materials and labor, including payments to Sub-contractors. All payments shall be subject to any withholding or retainage provisions of this contract. All pay request documents, except the final payment, shall be submitted in whole dollar amounts. All payment applications from the General Contractor shall include line items for overhead, profit and general condition costs.

30.2 The Consultant shall, within ten (10) Business Days after receipt of each application for payment, certify approval of payment in writing to the Owner and present the application to the Owner, or return the application to the General Contractor indicating in writing its reasons for refusing to approve payment. The Owner, provided no exception is taken to the application for payment submitted by the Consultant, will issue payment on or within thirty (30) Business Days from the date received from the Consultant. A reasonable delay on the part of the Owner in making payment to the General Contractor for any given payment shall not be grounds for breach of Contract. The Consultant may refuse to approve the whole or any part of any payment if it would be incorrect to make such presentation to the Owner.

30.3 If payment is requested on the basis of materials and equipment not incorporated in the Work, but delivered and suitably stored at an off jobsite location agreed to in writing by the Owner that meets the manufacturer's requirements for the stored material and not-comingled with other material, the General Contractor shall furnish the following:

30.3.1 A list of the materials consigned to the Project (which shall be clearly identified), giving the place of storage, together with copies of invoices.

30.3.2 Certification that all items have been tagged for delivery to the Project and that they will not be used for any other purpose.

30.3.3 A letter from the Surety indicating that the Surety agrees to the arrangements and that payment to the General Contractor shall not relieve either the General Contractor or its Surety of their responsibility to complete the Work.

30.3.4 Evidence of adequate insurance listing the Owner as an additional insured covering the material in storage.

30.3.5 Evidence that representatives of the Consultant have visited the General Contractor's place of storage and checked all items listed on the General Contractor's certificate. They shall certify, insofar as possible, that the items are in agreement with the Specifications and approve their incorporation into the Project.

30.4 The Owner will pay 80% of the invoiced value less retainage for materials stored off site providing the above conditions are met.

30.5 The General Contractor's signature on each subsequent application for payment shall certify that all previous progress payments received on account of the Work have been applied to discharge in full all of the General Contractor's obligations reflected in prior applications for payment.

30.6 Each payment made to the General Contractor shall be on account of the total amount payable to the General Contractor and the General Contractor warrants and guarantees that the title to all materials, equipment and Work covered by the paid partial payment shall become the sole property of Owner free and clear of all encumbrances. Nothing in this Article shall be construed as relieving General Contractor from the sole responsibility for care and protection of materials, equipment and Work upon which payments have been made or restoration of any damaged Work or as a waiver of the right of Owner to require fulfillment of all terms of the Contract Documents.

30.7 Prior to submitting the first application for payment, the General Contractor shall submit to the Consultant and the Owner for approval a detailed breakdown of the Contract Amount pursuant to CSI specification divisions, divided so as to facilitate payment and correlated to the schedule required by General Conditions Article 32 of the Contract Documents. The total value of all activities shall add up to the Contract Amount. When approved by the Consultant and the Owner, this schedule shall be used as a basis for General Contractor's applications for payment and may be used by the Owner to determine costs or credits resulting from changes in the Work. Failure to obtain the approval of the Schedules of Values shall be a basis for withholding payment to the General Contractor.

30.8 Retainage – The Owner will retain ten percent (10%) of the General Contractor's progress payments until fifty one percent (51%) of the construction project has been completed. Thereafter, if the Work is fully in compliance with the requirements of the Contract and except as provided for in Article 28.4.1 above, the Owner shall retain five percent (5%) of the total contract amount until Substantial Completion and acceptance of all Work covered by this Contract, as collateral security to insure successful completion of the Work. For the purposes of this Article, the term "in full compliance" shall mean 1) that the progress of the Work is equal to or ahead of that predicted by the Project Baseline schedule and 2) the Work completed is in compliance with the requirements of the contract documents. Subsequent to the issuance of the Substantial Completion Certificate and depending upon the cost involved for the completion and/or correction of punch list items, the Consultant may recommend to the Owner an adjustment to the amount being held as retainage and, if approved by Owner, the amount of retainage may then be reduced and a sufficient sum retained by Owner to assure completion of the remaining unfinished Work. Retainage reduction as provided for in this Article 30.8 is contingent upon the General Contractor and/or Sub-contractors being on or ahead of the approved progress schedule and on verification by the Consultant that the Work completed is in compliance with the requirements of the contract documents

30.8.1 In addition to the retainage set forth above, the Owner may withhold from any monthly progress payments or nullify any progress payments in whole or in part as necessary to protect the Owner from loss on account of:

30.8.1.1 Defective Work which has not been remedied or completed Work which has been damaged requiring correction or replacement, or

30.8.1.2 Action required by the Owner to correct Defective Work or complete Work which the General Contractor has failed or refused to correct or complete, or

30.8.1.3 Failure of the General Contractor to perform any of its obligations under the Contract, or

30.8.1.4 Failure of the General Contractor to make payment properly to Sub-contractors; suppliers of material, services or labor; or to reimburse the University for utilities or other services as provided for in the Contract;

30.8.1.5 Amounts to be withheld as liquidated damages for failure to complete the Project in the allotted Contract time.

30.8.2 When the Owner is satisfied that the General Contractor has remedied any such deficiency, payments shall be made of the amount being withheld on the next scheduled application for payment.

30.9 Final Payment – When all Work is completed and acceptable and the Contract is fully performed, the General Contractor will be directed to submit a final payment application for certification and the entire balance shall be due and payable upon a certification of completion by the Consultant that the Work is in accordance with the Contract Documents.

30.9.1 Upon issuance of the Certificate of Final Completion by the Owner and submittal by the General Contractor of all required documents and releases, all retained amounts shall be paid to the General Contractor as part of the Final Payment. By accepting such payment, the General Contractor certifies that all amounts due or that may become due to any Sub-contractor, any Consultant of the General Contractor, or any vendors or material suppliers, have been paid or will be paid from the proceeds of the final payment; and that, further, there are not liens, claims or disputes involving the Owner or the Consultant that are outstanding or unresolved.

30.10 The General Contractor shall promptly pay each Sub-contractor and material supplier upon receipt of payment from the Owner the amount to which said Sub-contractor and supplier is entitled, reflecting the percentage actually retained from payments to the General Contractor on account of such Sub-contractor's work. The General Contractor shall, by an appropriate Agreement with each Sub-contractor and material supplier, require each Sub-contractor and supplier to make payments to their sub-contractors, vendors and suppliers in similar manner.

30.10.1 The Consultant may, on request, furnish to any Sub-contractor or material supplier information regarding the percentages of completion applied for by the General Contractor and the action thereon by the Consultant.

30.10.2 Neither the Owner nor the Consultant shall have any obligation to make payment to any Sub-contractor or material supplier except as may otherwise be required by law.

ARTICLE 31 - AUDITS

31.1 The General Contractor's Trade Contractors', sub-contractors' and/or vendor's "records" shall upon reasonable notice be open to inspection and subject to audit and/or reproduction during normal business working hours as may be deemed necessary by the Owner at its sole discretion. Such audits may be performed by an Owner's representative or an outside representative engaged by the Owner. The Owner or its designee may conduct such audits or inspections throughout the term of this contract and for a period of three years after final payment, or longer if required by law. Owner's representative may (without limitation) conduct verifications such as counting employees at the Construction Site, witnessing the distribution of payroll,

verifying information and amounts through interviews and written confirmations with General Contractor's employees, field and agency labor, Trade Contractors and vendors.

31.2 "Records" as referred to in this Contract shall include any and all information, materials and data of every kind and character, including without limitation, records, books, papers, documents, subscriptions, superintendents' reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information and matters that may in the Owner's judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by any Contract Document. Such records shall include hard copy, as well as computer readable data if it can be made available, written policies and procedures; time sheets; payroll registers; cancelled payroll checks; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.); original estimates; estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); back charge logs and supporting documentation; invoices and related payment documentation; general ledger; records detailing cash and trade discounts earned; insurance rebates and dividends; and any other General Contractor or contractor records which may have a bearing on matters of interest to the Owner in connection with the General Contractor's dealings with the Owner (all foregoing hereinafter referred to as the "records") to the extent necessary to adequately permit evaluation and verification of any or all of the following:

- Compliance with Contract requirements for deliverables;
- Compliance with approved plans and specifications;
- Compliance with Owner's business ethics expectations;
- Compliance with Contract provisions regarding the pricing of change orders;
- Accuracy of General Contractor representations regarding pricing of invoices; and
- Accuracy of General Contractor representations related to claims submitted by the General Contractor or its payees.

31.3 The General Contractor shall require all payees (examples of payees include Trade Contractors, Subcontractors, vendors, and/or material suppliers) to comply with the provisions of this Article 32 by including the requirements hereof in a written contract agreement between the General Contractor and payees. Such requirements to include flow-down right of audit provisions in contracts with payees will also apply to Subcontractors and Sub-subcontractors, material suppliers, etc. The General Contractor will cooperate fully and will cause all related parties and all of the General Contractor's Trade Contractors and/or subcontractors (including those entering into lump sum subcontracts) to cooperate fully in furnishing or in making available to Owner from time to time whenever requested, in an expeditious manner, any and all such information, materials and data.

31.4 Owner's authorized representative or designee shall have reasonable access to the General Contractor's facilities, shall be allowed to interview all current or former employees to discuss matters pertinent to the performance of this contract and shall provide adequate and appropriate work space in order to conduct audits in compliance with this Article. The General Contractor and its payees agree bear their costs and expenses relating to any inspections and audits.

31.5 If an audit inspection or examination in accordance with this Article discovers any fraud or misrepresentation, or discloses overpricing or overcharges (of any nature) by the General Contractor to the Owner, in addition to making adjustments for the overcharges, the reasonable actual cost of the Owner's audit shall be reimbursed to the Owner by the General Contractor. Any adjustments and/or payments that must be made as a result of any such audit or inspection of the General Contractor's invoices and/or records shall be made within Ninety (90) Calendar Days from presentation of the Owner's findings to the General Contractor.

31.6 The provisions of Articles 31.1, 31.2 and 31.5 notwithstanding, the Owner shall have the right to conduct inspections and audits of any matter relating to the Contract Documents or the Work, which shall be for the Owner's sole benefit and shall not relieve the General Contractor, its sureties, contractors, subcontractors suppliers and their respective employees and agents of any obligations under the Contract Documents.

31.7 Any audits or inspections under Article 31 shall not constitute a waiver of any right the Owner has to accounting or discovery of records in the possession, custody or control of the General Contractor, its sureties, contractors, subcontractors, vendors and their respective employees and agents

ARTICLE 32- PROGRESS & SCHEDULING

32.1 The General Contractor shall prepare and submit to the Owner and the Consultant a CPM type construction schedule for the Work. The schedules submitted for this Project shall be prepared using Primavera scheduling software (Primavera Contractor; Primavera SureTrak with files saved in Concentric P3 format; Primavera P3; or Primavera P6). The schedules shall include all activities necessary for performance of the work showing logic (sequences, dependencies, etc.) and duration of each activity with the critical path highlighted. The schedules shall include, but not be limited to, submittal processing, fabrication and delivery of materials, construction, testing, clean-up, work and/or materials to be provided by the Owner, dates and durations for major utility outages requiring coordination with the Owner and the Owner's operations, and significant milestones related to the completion of the Project.

32.2.1 The General Contractor shall use scheduling software appropriate to meet the requirements of the Project and the intent of these Contract Documents, and shall advise the Owner in writing of the Primavera software program and version that will be used.

32.1.2 The schedules shall coordinate Work in accordance with all schedules included in the Owner's approved Program. Construction work shall be scheduled and executed such that operations of the University are given first priority. This applies particularly to outages and restriction of access.

32.1.3 The schedule shall not exceed time limits established for the Project. Schedules which reflect a duration less than the Contract Time are for the convenience of the General Contractor and shall not be the basis of any claim for delay or extension of time.

32.1.4 Schedules shall be revised at appropriate intervals as required by the condition of the Work and the Project, shall be related to the entire Project to the extent required by the Contract Documents and shall provide for expeditious and practicable execution of the Work.

32.1.5 The General Contractor shall also submit a payment schedule indicating the percentage of the Contract Amount and the anticipated monthly payments the Owner may make during the Project. The Owner may withhold approval of all or a portion of progress payments until the progress payment schedule and construction schedule have been submitted by the General Contractor.

32.2 The General Contractor shall prepare and keep current, for the Consultant's approval, a separate schedule of submittals which is coordinated with the General Contractor's construction schedule and allows the Consultant reasonable time to review submittals.

32.3 The General Contractor shall cause the work to be performed pursuant to the most recent schedules.

ARTICLE 33 - USE OF COMPLETED PORTIONS

33.1 Upon mutual Agreement between the Owner, General Contractor, and Consultant, the Owner may use a completed portion of the Project after an inspection is made. Such possession and use shall not be deemed as acceptance of any Work not completed in accordance with the Contract Documents, nor shall such possession and use be considered to alter warranty obligations or cause any warranty period to commence prior to Substantial Completion.

ARTICLE 34 - INDEMNIFICATION

34.1 To the fullest extent permitted by law, the General Contractor shall indemnify and hold harmless the Owner, its consultants, and their respective employees and agents from and against all claims, damages, losses and expenses, including attorney's fees, provided that any such claim, loss, damage or expense: (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom, and (b) is caused in whole or in part by any negligent act or omission of the General Contractor, any Sub-contractor or material supplier, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable. This basic obligation

to indemnify shall not be construed to nullify or reduce other indemnification rights which the Owner, its consultants, and their respective employees and agents would otherwise have.

34.2 The General Contractor shall also indemnify and hold harmless the Owner, its consultants, and their respective employees and agents from any claims relating to the Project brought against the Owner, its consultants, and their respective employees and agents by any Sub-contractor unless such claims are due to the gross negligence or misconduct of the Owner or Consultant.

34.3 In any and all claims against the Owner its consultants, and their respective employees and agents, by any employee of the General Contractor, any Sub-contractor, any one directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Article shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the General Contractor or any Sub-contractor under Worker's Compensation acts, disability benefit acts or other employee benefit acts.

34.4 The obligations of the General Contractor under this Article shall not extend to the liability of the Consultant, his agents or employees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or (2) the giving of or the failure to give directions or instructions by the Consultant, his agents or employees, provided such giving or failure to give is the primary cause of injury or damage.

ARTICLE 35 - INSURANCE

35.1 The General Contractor shall furnish the Owner the Certificates of Insurance or other acceptable evidence that insurance is effective, and guarantee the maintenance of such coverage during the term of the Contract. Each policy of insurance, except Workers Compensation, shall name the University of Kentucky and the directors, officers, trustees and employees of the University as additional insured on a primary and non-contributory basis as their interest appears. Waiver of subrogation in favor of the University of Kentucky shall apply to all policies. Any endorsements required to validate such waiver of subrogation shall be obtained by the General Contractor at the General Contractor's expense.

35.2 The General Contractor shall not commence, nor allow any Sub-contractor to commence Work under this Contract, until the Owner has reviewed the certificates and approved coverages and limits as satisfying the requirements of the bidding process.

35.3 Workers' Compensation and Employers' Liability Insurance. The General Contractor shall acquire and maintain Workers' Compensation insurance with Kentucky's statutory limits and Employers' Liability insurance as defined in the Special Conditions for all employees who will be working at the Project site. In the event any Work is sublet, the General Contractor shall require any Sub-contractor to provide proof of this insurance for the Sub-contractors' employees, unless such employees are covered by insurance provided by the General Contractor.

35.4. The General Contractor shall either require each Sub-contractor to procure and maintain insurance of the type and limits stated during the terms of the Contract, or insure the activities of such Sub-contractors under a blanket form as described below:

35.4.1 Commercial General Liability Insurance. The General Contractor shall acquire and maintain a Broad Form Comprehensive General Liability (CGL) Insurance Policy including premises - operations, products/completed operations, blanket contractual, broad form property damage, real property fire legal liability and personal injury liability coverage. The Insurance Policy must be on an "occurrence" form only, unless approved by the Owner. Contractual liability must be endorsed to include defense costs. Products and completed operations insurance must be carried for two years following completion of the Work. Policies which contain Absolute Pollution Exclusion endorsements are not acceptable. Coverage must include pollution from "hostile fires". Where required by the risks involved, Explosion, Collapse and Underground (XCU) coverages shall be added by endorsement. If the work involved requires the use of helicopters, a separate aviation liability policy as defined in the Special Conditions will be required. If cranes and rigging are

involved, a separate inland marine policy with liability limits as defined in the Special Conditions will be required.

35.4.1.1 The limits of liability shall not be less than defined in the Special Conditions.

35.4.2 Comprehensive Automobile Liability Insurance. The General Contractor shall show proof and guarantee the maintenance of insurance to cover all owned, hired, leased or non-owned vehicles used on the Project. Coverage shall be for all vehicles including off the road tractors, cranes and rigging equipment and include pollution liability from vehicle upset or overturn. Policy limits shall not be less than defined in the Special Conditions.

35.4.3 Excess or Umbrella Liability Insurance. The General Contractor shall acquire and maintain a policy of excess liability insurance in an umbrella form for excess coverages over the required primary policies of broad form commercial general liability insurance, business automobile liability insurance and employers' liability insurance. This policy shall have a minimum as defined in the Special Conditions for each occurrence in excess of the applicable limits in the primary policies. The excess liability policy shall not contain an absolute pollution exclusion and shall include coverages for pollution that may occur due to hostile fires and vehicle upset and overturn. The limits shall be increased as appropriate to cover any anticipated special exposures.

35.5 Builders Risk Insurance. The General Contractor shall purchase and maintain an "all risk" Builder's Risk Insurance policy upon the Work at the site to the full insurable value thereof. Such insurance shall include interests of the Owner, General Contractor, and all Sub-contractors and of their subcontractors. It shall insure against perils of fire, extended coverage, vandalism and malicious mischief. General Contractor's work performed, and materials to be incorporated into the project and stored on the jobsite, will be covered. Builder's Risk does not include temporary buildings, or General Contractor or General Contractor's tools, equipment, or trailers and contents.

35.6 Insurance Agent and Company Insurance as required in the bidding process of the Project shall be written according to applicable state law in Kentucky. The policies shall be written by an insurer duly authorized to do business in Kentucky in compliance with KRS: 304.1-100 and -.110.

ARTICLE 36 - PERFORMANCE AND PAYMENT BONDS

36.1 The General Contractor shall furnish a Performance Bond in the form provided in the Contract Documents in the full amount of the Contract Amount as security for the faithful performance of the Contract. The General Contractor shall also furnish a Payment Bond in the form provided in the Contract Documents in the full amount of the Contract Amount for the protection of all persons performing labor or furnishing materials, equipment or supplies for the General Contractor or its Sub-contractors for the performance of the Work provided for in the Contract, including security for payment of all unemployment contributions which become due and payable under Kentucky Unemployment Insurance Law.

36.2 Each bond furnished by the General Contractor shall incorporate by reference the terms of the Contract as fully as though they were set forth verbatim in such bonds. In the event the Contract Amount is adjusted by Change Order, the penal sum of both the performance bond and the payment bond shall be deemed increased by like amounts.

36.3 The performance and payment bonds shall be executed by a surety company authorized to do business in the Commonwealth of Kentucky, and the contract instrument of bonds must be countersigned by a duly appointed and licensed resident agent.

36.4 Unless the Project is exempt from the prevailing wage requirements of KRS 337.505 through 337.550, the General Contractor's bonds shall include a provision to guarantee the faithful performance and payment of the prevailing hourly wage as set forth in the schedule incorporated in the bid documents.

ARTICLE 37 - DAMAGED FACILITIES

37.1 The General Contractor shall repair or replace, at no expense to the Owner, any damaged section of existing buildings, paving, landscaping, streets, drives, utilities, watersheds, etc. caused by Work performed under the Contract or incidental thereto, whether by the General Contractor's own forces, Sub-contractors or by material suppliers. Such repair or replacement shall be performed by craftsmen skilled and experienced in the trade or craft for the original Work.

37.2 Water damage to the interior of any building caused by Work performed under the Contract or incidental thereto, whether by the General Contractor's own forces, Sub-contractors, or by material suppliers, and whether occurring in a new or existing building, shall be repaired by the General Contractor at the General Contractor's expense, and any materials damaged inside the building, including personal property, shall be repaired or replaced at the full replacement cost by the General Contractor at the General Contractor's expense.

37.3 For existing buildings, the General Contractor, along with the Owner's Representative and Consultant, will tour the Project site to evaluate existing conditions and determine any existing damage before any Work on this Contract is done.

37.4 Should the General Contractor fail to proceed with appropriate repairs in an expedient manner, the Owner reserves the right to have the Work/repairs completed and deduct the cost of such Work/repairs from amounts due or to become due to the General Contractor. If the Owner deems it not expedient to repair the damaged Work, or if repairs are not done in accordance with the Contract, an equitable deduction from the Contract price shall be made.

ARTICLE 38- CLAIMS & DISPUTE RESOLUTION

38.1 All General Contractor's claims and disputes shall be referred to the Consultant for review and recommendation. All claims shall be made in writing via the Contractor Change Request (CCR) module in Constructware® to the Consultant and Owner, not more than ten (10) days from the occurrence of the event which gives rise to the claim or dispute, or not more than ten (10) days from the date that the General Contractor knew or should have known of the claim or dispute. Unless the claim is made in accordance with these requirements, it shall be waived. Any claim not submitted before Final Payment shall be waived. The Consultant shall render a written decision within fifteen (15) days following receipt of a written demand for the resolution of a claim or dispute.

38.1.1 The provisions of Article 43.2 notwithstanding, claims and disputes between the General Contractor and any Sub-contractor or supplier shall not be referred to the Consultant except to request interpretation and/or clarification of the intent of the plans or specifications. Such claims and disputes between the General Contractor and any Sub-contractor shall be resolved between those parties as required by Article 43.4 of these General Conditions.

38.2 The Consultant's decision shall be final and binding on the General Contractor unless the General Contractor submits to the Consultant and the Project Manager a written notice of appeal within fifteen (15) Calendar Days of the Consultant's decision. The General Contractor must present within fifteen (15) Calendar Days of the notice to appeal a narrative claim in writing with complete supporting documentation. After receiving the written claim, the Project Manager will review the materials relating to the claim and may meet with the Consultant and/or the General Contractor to discuss the merits of the claim. The Project Manager will render a decision within thirty (30) Calendar Days after receiving the written claim and supporting documentation. The decision of the Project Manager shall be final and binding pending further appeal as provided for in Article 39. If the Consultant or the Project Manager do not issue a written decision within thirty (30) calendar days after receiving the claim and supporting documentation, or within a longer period as may be established by the parties to the Contract in writing, then the General Contractor may proceed as if an adverse decision had been received.

38.3 If the Project Manager does not agree with the Consultant's decision on a claim by the General Contractor, the Project Manager shall notify the General Contractor and the Consultant and direct the General Contractor to perform the Work about which the claim was made and the General Contractor shall proceed with

such Work in accordance with the Project Manager's instruction. If the General Contractor disagrees with a decision of the Project Manager concerning a General Contractor's claim, the General Contractor shall proceed with the Work as indicated by the Project Manager's decision.

38.4 The General Contractor shall continue to diligently pursue Work under the Contract pending resolution of any dispute, and the Owner shall continue to pay for undisputed work in place.

ARTICLE 39 - CLAIMS FOR DAMAGE

39.1 Should either party to the Contract suffer damage because of wrongful act or neglect of the other party, or of anyone employed by them, or others for whose act they are legally liable, or other controversy arising under the Contract, such claim or controversy shall be made in writing to the other party within thirty (30) days after the first occurrence of the event. Prior to the institution of any action in court, the claim or controversy (together with supporting data) shall be presented in writing to the Director of the Capital Project Management Division at the University of Kentucky ("Director") or his designee for the University of Kentucky. The Director, or designee, is authorized, subject to any limitations or conditions imposed by regulations, to settle, comprise, pay, or otherwise adjust the claim or controversy with the General Contractor. The Director, or designee, shall promptly issue a decision in writing. A copy of the decision shall be mailed or otherwise furnished to the General Contractor. The decision rendered shall be final and conclusive unless the General Contractor files suit pursuant to KRS 45A.245. If the Director, or designee, does not issue a written decision within one hundred and twenty (120) days after written request for a final decision, or within a longer period as may be established by the parties to the Contract in writing, then the General Contractor may proceed as if an adverse decision had been received.

39.2 Any legal action on the Contract shall be brought in the Franklin Circuit Court and shall be tried by the Court sitting without a jury. All defenses in law or equity, except the defense of government immunity, shall be preserved to the Owner. The Owner shall recover from the General Contractor all attorney's fees, costs and expenses incurred to the extent the Owner prevails in defending or prosecuting each claim in litigation of disputes under the Contract. The Owner is the prevailing party under this provision and is entitled to recover attorneys' fees, costs and expenses on a claim-by-claim basis to the extent the Owner successfully defeats or prosecutes each claim. A recovery of a net judgment by the General Contractor shall not be determinative of the Owner's right to recover attorneys' fees, expenses and costs. Rather, such a determination shall be made based on the extent that the Owner successfully defends or prosecutes each distinct claim in litigation under the Contract, even if the Owner does not prevail on every claim. The General Contractor shall be liable to the Owner for all attorney's fees, costs and expenses incurred by the Owner to enforce the provisions of the Contract.

ARTICLE 40 - LIENS

40.1 The filing and perfection of liens for labor, materials, supplies, and rental equipment supplied on the Work are governed by KRS 376.195 et seq.

40.2 Statements of lien shall be filed with the Fayette County Clerk and any action to enforce the same must be instituted in the Fayette Circuit Court, pursuant to KRS 376.250 (2).

40.3 The lien shall attach only to any unpaid balance due the General Contractor for the improvement from the time a copy of statement of lien, attested by the Fayette County Clerk, is delivered to the Owner, pursuant to the provisions of KRS 376.240.

ARTICLE 41 - ASSIGNMENT

41.1 Neither party to the Contract shall assign the Contract, or any portion thereof without the prior written consent of the other, which consent may be granted or withheld in the granting party's sole and absolute discretion. The General Contractor shall not assign any amount or part of the Contract or any of the funds to be received under the Contract unless the General Contractor has the prior written approval of the Owner (which approval may be granted or withheld in the Owner's sole and absolute discretion) and the Surety on the General Contractor's bond has given written consent to any such assignment.

ARTICLE 42 - SEPARATE CONTRACTS

42.1 The Owner reserves the right to enter into other Contracts in connection with the Project or to perform any work with the Owner's forces in the normal sequence of the work as depicted in the then current construction schedule. Except for work performed by University personnel, such contracts shall be assignable to the General Contractor and shall contain the same terms and conditions as the contracts between the General Contractor and the Sub-contractors. The General Contractor will be entitled to a maximum of 7% total fee on the value of such assigned contracts. The General Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate its Work with theirs in such manner as the Consultant may direct.

42.2 Should the General Contractor cause damage to any separate contractor on the Work, and the separate contractor sues the Owner on account of any damage alleged to have been so sustained, the General Contractor shall be responsible for all costs, attorney's fees and expenses incurred by the Owner for defending such proceedings unless the Owner prevails on behalf of the General Contractor in which case fees and expenses will be the responsibility of the separate contractor and if any judgment against the Owner arises therefrom, the General Contractor shall pay or satisfy it and shall pay all costs, attorney's fees and expenses incurred by the Owner.

42.3 If any part of the General Contractor's Work depends upon the work of any other separate contractor, the General Contractor shall promptly report to the Consultant any observed defects in such work that render it unsuitable for proper execution connection. The failure to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of the work, except as to defects which may develop in the other contractor's work after the execution of the work.

42.4 Whenever work being done by the Owner's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various parties involved shall be established by the Owner to secure the completion of the various portions of the Work in general harmony.

ARTICLE 43 - GENERAL CONTRACTOR/SUB-CONTRACTOR RELATIONSHIP

43.1 The General Contractor is fully responsible to the Owner for the acts and omissions of the Sub-contractors and of persons either directly or indirectly employed by them. The General Contractor is responsible for the acts and omissions of persons employed directly by the General Contractor and for the coordination of the Work, including placement and fittings of the various component parts. No claims for extra costs as a result of the failure to coordinate the Work, or by acts or omissions of the various Sub-contractors, will be paid by the Owner.

43.2 Except as otherwise provided in these Contract Documents, the General Contractor agrees to bind every Sub-contractor by the terms and conditions of the Contract Documents as far as applicable to their portion of the Work. Upon request, the General Contractor shall provide copies of any subcontracts and purchase orders to the Owner or Consultant.

43.3 The General Contractor shall make no substitution or change in any Sub-contractor listed and accepted by the Consultant or Owner except as approved in writing by the Owner. The General Contractor shall not employ any Sub-contractor or supplier against whom the Owner or the Consultant has made reasonable and timely objection.

43.4 Nothing contained in the Contract Documents shall create any contractual relationship between the Owner and any Sub-contractor or supplier. The General Contractor is hereby notified that it is the General Contractor's contractual obligation to settle disputes between Sub-contractors and/or suppliers. Neither the Owner nor the Consultant will settle disputes between the General Contractor and the Sub-contractors or suppliers, or between Sub-contractors or suppliers.

43.4.1 The Owner does not waive sovereign immunity under KRS 45A.245(1) for any claim or claims made by parties not having a written contract with the University of Kentucky.

43.4.2 Third party and/or flow-through type claims, from Sub-contractors and/or suppliers or any other entity not having a written contract directly with the University, are specifically prohibited by this Contract and no provision of the General Contractor's contracts with such entities shall indicate otherwise.

43.4.3 The General Contractor shall indemnify and hold harmless the Owner and its agents and employees from any claims relating to the Project brought against the Owner by any of the General Contractor's Sub-contractors or suppliers, or between their sub-contractors or suppliers.

ARTICLE 44 - CASH ALLOWANCE

44.1 The General Contractor is to provide or require the Sub-contractor(s) to include in the Contract Amount all costs necessary to complete the Work. Costs based on "allowances" shall be permitted only for objectively quantifiable material items and only with the prior written approval of the Owner.

ARTICLE 45 - PROJECT SITE LIMITS

45.1 The General Contractor shall confine the apparatus, the storage of materials, and the operations of Workmen to Project site limits indicated in the Contract Documents and as permitted by law, ordinances, and permits, and shall not unreasonably encumber the site with materials and equipment.

ARTICLE 46 - CLEAN UP

46.1 The General Contractor shall at all times keep the premises free from accumulation of waste material or rubbish caused by the operations in connection with the Work. All corridors and exit doors must be kept clear at all times. All exit ways, walks, and drives must be kept free of debris, materials, tools and vehicles.

46.2 At the completion of the Work, and prior to final inspection and acceptance, the General Contractor shall remove all remaining waste materials, rubbish, General Contractor's construction equipment, tools, machinery, and surplus materials and shall leave the Work in a clean and usable condition, satisfactory to the Consultant and the Owner. If the General Contractor fails to clean up as provided in the Contract Documents, the Owner may perform the cleaning tasks and charge the cost to the General Contractor.

ARTICLE 47 - POINTS OF REFERENCE

47.1 The General Contractor shall carefully preserve bench marks, reference points and stakes, and in case of willful or careless destruction, the General Contractor shall be charged with the resulting expense of replacement and shall be responsible for any mistake that may be caused by their loss or disturbance.

ARTICLE 48 - SUBSTITUTION - MATERIALS AND EQUIPMENT

48.1 Reference to or the listing of items to be incorporated in the construction without referring to any specific article, device, equipment, product, material, fixture, patented process, form, method or type of construction, or by name, make, trade name, or catalog number shall be interpreted as establishing the general intent of the Contract and the general standard of quality for that item.

48.2 Specific references in the Contract Documents to any article, device, equipment, product, material, fixture, patented process, form, method or type of construction, or by name, make, trade name, or catalog number, with the words "or equal", shall be interpreted as establishing a minimum standard of quality, and shall not be construed as limiting competition.

48.2.1 Substitution of other equipment and materials as "or equal" to items named in the specifications will be allowed provided the proposed substitution is approved by the Consultant and will perform the functions called for by the general design, be similar and of equal quality to that specified and be suited to the same use and capable of performing the same function of that specified. The Contractor has the burden to prove equality of any substitution requested.

48.3 Specific references in the Contract Documents to any article, device, equipment, product, material, fixture, patented process, form, method or type of construction, or by name, make, trade name, or catalog number, without the words "or equal", shall be interpreted as defining an item or source that has after careful consideration been determined by the University as necessary to be compliant with, and/or to function properly within, the University operational system. No substitutions will be allowed.

48.3.1 In the event the Contract Documents contain specific reference to two (2) or more items as described in Article 48.3, any of those listed will be acceptable.

48.4 Substitution of equipment and materials previously submitted by the Contractor and approved by the Consultant will be considered only for the following reasons:

48.4.1 Unavailability of the materials or equipment due to conditions beyond the control of the supplier.

48.4.2 Inability of the supplier to meet Contract Schedule.

48.4.3 Technical noncompliance to specifications.

48.5 In substituting materials or equipment, the Contractor assumes responsibility for any changes in systems or modifications required in adjacent or related work to accommodate such substitutions, despite consultant approval, and all costs associated with the substitution shall be the responsibility of the Contractor. The Consultant shall be reimbursed by the Contractor for any architectural or engineering revisions required as the result of such substitutions.

48.6 Inclusion of a certain make or type of materials or equipment in the Contractor's bid proposal shall not obligate the Owner to accept such materials or equipment if they do not meet the requirements of the Contract Documents and any such substitutions in the preparation of the bid without written approval shall be at the sole risk of the Contractor.

ARTICLE 49 - TEST AND INSPECTION

49.1 Regulatory agencies of the government having jurisdiction may require any Work to be inspected, tested or approved. The General Contractor shall assume full responsibility therefore, pay all costs in connection therewith, unless otherwise noted, and furnish the Consultant the required certificates of inspection, testing or approval.

49.2 The General Contractor shall give the Consultant timely notice of readiness of the Work for all inspections, tests or approvals.

49.3 The technical specifications may indicate specific testing requirements to be performed by the General Contractor. Unless otherwise provided in the Contract Documents, the cost of all such testing shall be the responsibility of the General Contractor. Testing shall be completed using a testing facility or laboratory approved by the Owner.

49.4 The costs of all inspection fees as may be required to construct and occupy the Work shall be the responsibility of the General Contractor.

ARTICLE 50 - WARRANTY

50.1 The General Contractor warrants to the Owner and the Consultant that all materials and equipment furnished under this Contract shall be new and in accordance with the requirements of the Contract Documents, and that all Work shall be of good quality, free from faults and defects and in conformance with the Contract Documents. If required by the Consultant or the Owner, the General Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. If the General Contractor requests approval of a substitution of material or equipment, the General Contractor warrants that such installation, construction, material, or equipment will equally perform the function for which the original material or equipment was specified. The General Contractor explicitly warrants the merchantability, the fitness for a particular purpose,

and quality of all substituted items in addition to any to any warranty given by the manufacturer and/or supplier. Approval of any such substitution is understood to rely on such warrant of performance. Prior to the Substantial Completion inspection, the General Contractor shall deliver to the Consultant all warranties and operating instructions required under the Contract or to which the General Contractor is entitled from manufacturers, suppliers, and Sub-contractors. All warranties for products and materials incorporated into the Work shall begin on the date of Substantial Completion. The warranty provided in this Article 50 shall be in addition to and not a limitation of any other warranty or remedy required by law or by the Contract Documents, and such warranty shall be interpreted to require the General Contractor to replace defective material and equipment and re-execute defective Work which is disclosed to the General Contractor by or on behalf of the Owner within a period of one (1) year after Substantial Completion of the entire Work in addition to other warranty obligations beyond one (1) year from Substantial Completion as provided for by law or by the Contract Documents.

50.2 Neither the final payment, any provision in the Contract Documents nor partial or entire use or occupancy of the premises by the Owner shall constitute an acceptance of Work not done in accordance with Contract Documents or relieve the General Contractor or its Sureties of liability with respect to any warranties or responsibilities for faulty materials and workmanship. The General Contractor or its sureties shall remedy any defects in Work and any resulting damage to Work at the General Contractor's own expense. The General Contractor shall be liable for correction of all damage resulting from defective Work. If the General Contractor fails to remedy any defects or damage, the Owner may correct Work or repair damages and the cost and expense incurred in such event shall be paid by or be recoverable from the General Contractor or the surety. The Owner will give notice of observed defects with reasonable promptness.

50.3 The General Contractor shall guarantee that labor, material, and equipment will be free of defects for a period of one (1) year from the date shown on the Certificate of Substantial Completion unless special conditions or additional warranty periods are required by the contract pursuant to Article 23 in addition to warranty obligations which extend beyond one year from Substantial Completion. The Owner will give notice of observed defects with reasonable promptness. Expendable items and wear from ordinary use are excluded from this warranty.

50.4 Should the General Contractor be required to perform tests that must be delayed due to climate conditions, it is understood that such tests will be accomplished by the General Contractor at the earliest possible date with provisions of the general warranty beginning upon satisfactory completion of said test. The responsibility of the General Contractor under this Article will not be abrogated if the Owner should elect to initiate final payment. If the Owner initiates final payment, consent of General Contractor's surety acknowledging that Work not yet tested is required. The General Contractor shall warrant that the entire Project will conform to the Contract Documents.

50.5 In addition to the foregoing, the General Contractor shall warrant for a period of one (1) year that all buildings and other improvements constructed as a part of the Work shall be watertight and leak proof at every point and in every area. The General Contractor shall, immediately upon notification by or on behalf of the Owner of water penetration, determine the source of water penetration and, at the General Contractor's expense, (a) do any work to be necessary to make such buildings or improvements watertight and (b) repair and replace any other damaged material, fences and furnishings damaged as a result of such water penetration and return the buildings or other improvements to their original condition.

50.6 The General Contractor shall address and resolve to the Owner's satisfaction any warranty claims made by or on behalf of the Owner during the above described warranty period and all repairs and replacements made by the General Contractor pursuant to this Article 50 shall be warranted by the General Contractor, on the terms set forth in this Article 50, for a period of time commencing upon the completion of such repairs and replacements and ending on the later of (a) the expiration of the one (1) year warranty period provided for above or (b) six (6) months after the date such repair or replacement is completed.

50.7 All costs, attorney's fees and expenses incurred by the Owner as a result of the General Contractor's failure to honor any warranty for the Work shall be paid by or recoverable from the General Contractor.

ARTICLE 51 - PREVAILING WAGE LAW REQUIREMENTS

51.1 In performing the Work, the General Contractor and Sub-contractors are required to comply with the wage and hour requirements of KRS 337.505 through 337.550, except where the contract meets exemption requirements of KRS 337.010.

51.2 On Projects not exempted under KRS 337.010, the General Contractor and Sub-contractors shall pay all laborers, workers and mechanics performing Work under this Contract not less than the wages set fourth in the prevailing wage schedule, incorporated as part of the bid and Contract Documents, as determined by the Kentucky Department of Labor in accordance with provisions of KRS 337.505 through KRS 337.550.

51.3 On covered Projects, the General Contractor shall post and keep posted in a conspicuous place or places at the site of the Work a copy or copies of the prevailing rates of wages and the working hours as prescribed in the Contract Documents. Any laborer, worker, or mechanic working in excess of eight (8) hours per day or forty (40) hours per week, except in cases of emergency caused by fire, flood, or damage to life or property, shall be paid not less than one and one-half (1 1/2) times the basic hourly rate of pay fixed by law for all overtime worked. The determination of when an emergency exists shall be made by the Consultant or Owner as provided by law. Overtime is to be computed at not less than one and one-half (1 1/2) times the indicated base rate for all hours worked in excess of eight (8) hours per day, or in excess of forty (40) hours per week. KRS 337.540 permits an employee and employer to agree in writing that the employee will be compensated at a straight time base rate for hours worked in excess of eight (8) hours in any one workday but not more than ten (10) hours worked in any one (1) calendar day where there the employee and employer enter into an agreement in writing prior to the working of any one (1) day in excess of eight (8) hours, or where provided for in a collective bargaining agreement. The fringe benefit rate is to be paid for each hour worked at a straight time rate for all hours worked. This applies to all prevailing wage determinations issued by the Labor Cabinet. As a point of clarification, if no collective bargaining agreement exists, employers must have a signed agreement with each employee on the Project. These agreements must be maintained at the employer's office along with the payroll records.

51.4 The General Contractor and all Sub-contractors shall keep full and accurate payroll records covering all disbursements of wages to their employees to whom they are required to pay not less than prevailing rate of wages. Records shall indicate the hours worked each day by each employee in each classification of Work and amount paid each employee for his work in each classification. Payroll records are to be maintained within the state for one year after completion of the Contract. These records are to be open for inspection and transcript by the Department of Labor at any reasonable time.

ARTICLE 52 - APPRENTICES

52.1 Apprentices (for all classifications of work) shall be permitted to work only under an apprenticeship agreement approved by the Kentucky Supervisor of Apprenticeship and by the Kentucky Apprenticeship and Training, United States Department of Labor.

ARTICLE 53 - GOVERNING LAW

53.1 This Contract and all issues and disputes arising out of this Contract shall be governed by, construed and enforced in accordance with the laws of the Commonwealth of Kentucky without consideration of its conflicts of laws principles.

ARTICLE 54 - NONDISCRIMINATION IN EMPLOYMENT

54.1 During the performance of the Contract, the General Contractor agrees as follows:

54.1.1 The General Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, national origin, or disability in employment. The General Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, age, national origin, or disability in employment. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer,

recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The General Contractor agrees to post in conspicuous places available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

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

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

54.2 Failure to comply with the above nondiscrimination clause constitutes a material breach of Contract.

ARTICLE 55 - AFFIRMATIVE ACTION; REPORTING REQUIREMENTS

55.1 The General Contractor and any Sub-contractor is exempt from any affirmative action or reporting requirements, under the Kentucky Equal Employment Opportunity Act of 1978, KRS 45.550 to KRS 45.640 "The Act", if any of the following conditions are applicable:

55.1.1 The sub-contract awarded is in the amount of two hundred and fifty thousand dollars (\$250,000.00) or less, and the amount of the sub-contract is not a subterfuge to avoid compliance with the provisions of the Act;

55.1.2 The General Contractor or Sub-contractor utilizes the services of fewer than eight (8) employees during the course of the Contract;

55.1.3 The General Contractor or Sub-contractor employs only family members or relatives;

55.1.4 The General Contractor or Sub-contractor employs only persons having a direct ownership interest in the business and such interest is not a subterfuge to avoid compliance with the provisions of The Act.

55.2 The General Contractor and any Sub-contractor, not otherwise exempted, shall:

55.2.1 For the length of the Contract, hire minorities from within the drawing area to satisfy the agreed upon goals and timetables. Should the union with which the General Contractor or Sub-contractor have collective bargaining agreements be unwilling to provide sufficient minorities to satisfy the agreed upon goals and timetables, the General Contractor and Sub-contractors shall hire minorities from other sources within the drawing area;

55.2.2 The equal employment provisions of The Act may be met in part by the General Contractor contracting to a minority contractor or Sub-contractor. A minority contractor, Sub-contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.

55.2.3 Each General Contractor shall, for the length of the Contract, furnish such information as required by The Act and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to its employment practices and Work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with The Act and such rules, regulations and orders issued pursuant thereto.

55.3 If the General Contractor is found to have committed an unlawful practice against a provision of The Act during the course of performing under this Contract, a subcontract covered under The Act, the Owner may cancel or terminate the Contract, conditioned upon a program for future compliance approved by the Owner. The Owner may also declare such General Contractor ineligible to submit proposals on further contracts until such time as the General Contractor complies in full with the requirements of The Act.

55.4 Any provisions of The Act notwithstanding, no General Contractor shall be required to terminate an existing employee, upon proof that employee was employed prior to the date of the Contract, nor hire anyone who fails to demonstrate the minimum skills required to perform a particular job.

UNIVERSITY OF KENTUCKY
SPECIAL CONDITIONS OF THE CONTRACT
FOR CONSTRUCTION BY A GENERAL CONTRACTOR
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ARTICLE 01 GENERAL INFORMATION

1.1 These Special Conditions are intended to modify, supplement, or delete from, applicable Articles of the General Conditions.

1.2 Where any Article of the General Conditions is supplemented by these Special Conditions, the Article shall remain in effect and the supplement shall be added thereto.

1.3 Where Special Conditions conflict with General Conditions, provisions of the Special Conditions take precedence.

ARTICLE 02 FIELD CONDITIONS

2.1 General Contractor will secure all data at the site of construction such as grades of lot, convenience of receiving and sorting material, location of public services, and other information which will have a bearing proposals or on the execution of the Work and shall address these issues in the preparation of their bid. No allowance shall be made for failure of the General Contractor to obtain such site information prior to submitting their proposal, and no adjustment to the General Contractor's Contract amount or stipulated time for completion shall be allowed when due to failure by the General Contractor to do so.

ARTICLE 03 (NOT USED)

ARTICLE 04 CONSULTANT

4.1 Wherever in these Contract Documents reference is made to the Consultant, it shall be understood to mean Bell Engineering or their duly authorized representatives. (See Article 2 of the General Conditions.)

ARTICLE 05 GEOTECHNICAL REPORT

5.1 The Sub-Surface Investigation was prepared by L.E. Gregg Associates. The information furnished by addendum--Drawings is for information purposes only and is not a part of the Contract Documents. The boring logs and soundings, if any, are included for the General Contractor's information but do not represent a warranty of subsurface conditions. Neither the Owner nor the Consultant will be responsible for interpretations or conclusions drawn from this report by the General Contractor. This data is made available solely for the convenience of the General Contractor.

ARTICLE 06 TIME FOR COMPLETION

6.1 The time for Substantial Completion (as further defined in Article 1 of the General Conditions) for each phase of Work shall be as stipulated below and as specified in the Work Order letter, and Final Completion for each phase shall be thirty (30) days thereafter.

Parking lot shall be substantially completed by August 15, 2014.

Plantings to be completed by November 30, 2014.

ARTICLE 07 LIQUIDATED DAMAGES

7.1 Should the General Contractor fail to achieve Substantial Completion of the Work under this Contract on or before the date stipulated for Substantial Completion (or such later date as may result from extensions in the Contract Time granted by the Owner), he agrees that the Owner is entitled to, and shall pay the Owner as liquidated damages the sum of \$489.00Dollars for each consecutive calendar day that Substantial Completion has not been met. See Article 3 of the Agreement.

ARTICLE 08 SUBMITTALS AND SHOP DRAWINGS

8.1 SUBMISSIONS - GENERAL

8.1.1 The General Contractor shall submit each set of Shop Drawings, product data and samples with a separate transmittal form. The transmittal form will be provided by the Owner's Project Manager during the Pre-Construction meeting. Projects utilizing Constructware® will use Constructware's template.

8.1.2 All sample selections for color shall be submitted for approval at the same time. Color selections shall not be submitted individually.

8.1.3 Any deviation from the Contract Documents shall be noted on the transmittal form comment section.

8.1.4 All submittals are to be reviewed by the General Contractor for compliance with the Contract Documents before submission for approval. All submittals are to be initiated by the General Contractor. Submittals made directly to the Consultant by sub-contractors, manufacturers or suppliers will not be accepted or reviewed.

8.1.5 Re-submittals shall conspicuously note all changes from earlier submissions. Special notation by the General Contractor shall be made to any changes other than those in response to the Consultant's review.

8.1.6 Manufacturers shall, when requested by the Consultant, submit test reports prepared by reputable firms or laboratories certifying as to performance, operation, construction, wearability, etc., to support claims made by the manufacturer of the equipment or materials proposed for inclusion in the Work. General Contractor shall also submit a list of three (3) installations where said equipment or materials have been in service for a minimum of five (5) years.

8.2 SUBMISSIONS - REVIEW

8.2.1 Review of submittals is only for compliance with the design concept and the contract documents. THE CONSULTANT SHALL NOT BE RESPONSIBLE FOR CHECKING DEVIATIONS FROM CONTRACT DOCUMENT REQUIREMENTS OR CHANGES FROM EARLIER SUBMISSIONS NOT SPECIFICALLY NOTED.

8.2.2 The following shall be verified prior to making submittals:

Field Measurements, Field Construction Criteria, Catalog numbers and similar data, Quantities and Capacities, and Compliance with requirements, including verification of all dimensions,

8.2.3 Review Stamp designations shall be as follows:

8.2.3.1 "A = Approved", "FS = Furnish as Submitted", or "NET = No Exceptions Taken": Proceed with the Work, no corrections needed.

8.2.3.2 "AN = Approved as Noted" or "FC= Furnish as Corrected": Proceed with the Work, noting the corrections/conditions of the approval.

8.2.3.3 "RR = Revise and Resubmit": Do not proceed with the Work, as the submittal does not comply with the Contract Documents. Revisions to the submittal are required for approval.

8.2.3.4 "SC = See Comments": Do not proceed with the Work. Comments have been made to the submittal which may require revisions or deviations from the contract documents.

8.2.3.5 "NA = Not Approved": Do not proceed with the Work, the submittal is rejected.

8.3 SUBMISSIONS - SPECIAL PROVISIONS

8.3.1 In making a submittal, the General Contractor shall be deemed to be making the following representations:

8.3.1.1 The General Contractor understands and agrees that he shall bear full responsibility for the products furnished. The General Contractor expressly warrants that products described in the attached submittal will be usable and that they conform to the Contract requirements unless specifically noted otherwise.

8.3.1.2 The General Contractor understands and agrees that, without assuming design responsibility, he expressly warrants that products described in the attached submittal are capable of being used in accordance with the intent of the design documents and that they conform to the Contract requirements unless specifically noted otherwise.

8.3.1.3 The General Contractor acknowledges that the Owner will rely on the skill, judgment, and integrity of the General Contractor as to conformance requirements and subsequent usability.

8.4 SHOP DRAWING AND PROCUREMENT SUBMITTAL LOG

8.4.1 The General Contractor, within ten (10) days after the Pre-Construction meeting, shall submit to the Consultant using Constructware® a log fixing the dates for submission of Shop Drawings, special order material items, certifications, guarantees, and any other items required to be submitted to the Consultant for review, approval or acceptance. This log shall be on the form provided by the Constructware® program as discussed by the Owner's Project Manager at the Pre-Construction Meeting

8.4.2 Upon review and approval of the initial log schedule, the General Contractor shall complete the remaining portion as Shop Drawings are submitted for approval. The log shall track all submittals to date. The updated log shall then be reviewed and discussed at each progress meeting to determine items that may impact the construction schedule.

8.5 Shop Drawings

8.5.1 The General Contractor shall review, approve, and submit Shop Drawings to the Consultant, in accordance with the Consultant's Shop Drawing & Procurement Submittal Log as herein detailed. By approving and submitting Shop Drawings, the General Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

8.5.2 The General Contractor shall submit Shop Drawings required for the Work and the Consultant will review and take appropriate action. The review and approval shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The approval of a separate item will not indicate approval of the assembly in which the item functions.

8.5.3 The General Contractor shall make any corrections required by the Consultant for compliance with the Contract and shall return the required number of corrected copies of Shop Drawings and resubmit new samples until approved. The General Contractor shall direct specific attention, in writing, or on resubmitted Shop Drawings, to revisions other than the corrections called for by the Consultant on previous submissions. The General Contractor's stamp of approval on any shop drawing or sample shall constitute a representation to Owner and Design Consultant that the General Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar date, or he assumes full responsibility for doing so, and that he has reviewed or coordinated each shop drawing or sample with the requirements of the Work and the Contract Documents.

8.5.4 Where a shop drawing or sample submission is required by the specifications, no related Work shall be commenced until the submission has been approved by the Design Consultant. A copy of each approved shop drawing and each approved sample shall be kept in good order by the General Contractor at the site and shall be available to the Consultant.

8.5.5 The Consultant's approval of Shop Drawings or samples shall not relieve the General Contractor from his responsibility for any deviations from the requirements of the Contract Documents unless the General Contractor has in writing called the Consultant's attention to such deviation at the time of submission and the Consultant has given written approval to the specific deviation. Any approval by the Consultant shall not relieve the General Contractor from responsibility for errors or omissions in the Shop Drawings.

8.5.6 All submittals are to be submitted electronically by the contractor. Submittals must either be accompanied by a Shop Drawing & Procurement Transmittal which the Contractor will create from the Submittal Log or submitted through the Send Wizard in Constructware®. A separate transmittal form or message is to be prepared and attached to each package of submittals. A Constructware® transmittal form or message is to accompany the Shop Drawings from the General Contractor to the Consultant and from the Consultant to the General Contractor. Each individual Shop Drawing shall have a copy of the Shop Drawing & Procurement Transmittal or message attached with its respective specification number and description highlighted.

8.5.7 At the completion of the Project, two (2) complete sets of approved Shop Drawings are to be submitted to the Consultant. Each set is to be placed in a legal size cardboard file box with each copy of the approved Shop Drawing placed in a separate hanging file folder with file tabs. Each hanging file folder shall contain one (1) copy of an approved Shop Drawing with a copy of the original approved Shop Drawing Transmittal Form.

8.5.8 Where Shop Drawings include fire alarm, communication systems schematics, sprinkler systems, etc., a mylar sepia of each drawing shall be submitted to the Consultant as part of the "Record" set of drawings.

8.5.9 One (1) copy of each approved Shop Drawing shall be maintained at the job site by the General Contractor's Superintendent. One (1) copy of each approved Shop Drawing shall also be maintained at the job site by the Resident Inspector, if a Resident Inspector is provided.

8.5.10 The minimum number of approved Shop Drawings required to be submitted is four (4); (One (1) for Physical Plant Division's information; one (1) at the job site for the General Contractor; and two (2) at the completion of the Project.) Additional sets needed by the Consultant(s), General Contractor, Sub-contractors, Suppliers, etc. will be determined at the Pre-Construction meeting and supplied by the contractor.

8.6 SUBMISSIONS - SAMPLES

8.6.1 Office samples shall be of sufficient size and quantity to clearly illustrate functional characteristics of the product with integrally related parts and attachment devices, and full range of color, texture, and pattern.

8.6.2 Products shall not be used until the sample has been submitted to and approved by the Consultant.

8.6.3 A minimum of two (2) samples are required to be submitted to the Consultant for review and approval and will be distributed as follows:

- a) One (1) to be retained by the University;
- b) One (1) to be returned to the Design Consultant;

- c) An additional sample or samples may be submitted, at the General Contractor's option, for distribution to a third party.

8.6.4 Field samples (block, brick, etc.) of materials to be constructed at the site shall be submitted for review as required by the individual section of the Contract Documents.

8.7 SUBMISSIONS - OPERATION AND MAINTENANCE MANUALS

8.7.1 The University requires a minimum of two (2) bound copies and one (1) digital copy of the final installation, training, operation, maintenance, and repair manuals to be turned over to the Owner's Project Manager and approved for content by the Consultant by or before the time construction is 75% complete.

8.7.2 Manuals provided must be of sufficient detail to enable the Owner or others to install, calibrate, train, operate, maintain, service and repair every system, subsystem, and/or piece of equipment installed on or as part of this Contract. Each manual must contain:

8.7.2.1 Project Title, Project number, Location, dates of submittals, names, addresses and phone number for the Consultant, General Contractor, and General Contractor's Sub-contractors;

8.7.2.2 An Equipment Index that includes vendor's names, addresses, and telephone numbers for all equipment purchased on the Project;

8.7.2.3 Emergency instructions with phone numbers and names of contact persons on warranty items shall be uploaded to Constructware®;

8.7.2.4 Original copies of the following provided by the manufacturer:

| | |
|------------------------|---------------------|
| Installation manuals | Instruction Manuals |
| Training manuals | Calibration manuals |
| Service Manual | Operation manuals |
| Parts list | Repair manuals |
| Reviewed Shop Drawings | |

8.7.2.5 Copies of all inspection and guarantee certificates, manufacturers' warranties with the University of Kentucky listed as the Owner for all equipment provided and/or installed.

8.7.2.6 All manuals shall be as follows: Bound in hard cover three(3) ring (D-type) binder, 1", 1.5" or 2" maximum, indexed and in CSI format, tabbed (4,5,8 or 16th cut), no more than 80% binder fill, white vinyl, presentation type with clear vinyl view cover on front, back and spine and with pockets on front and back. Maximum drawing size in binder shall be folded 11"x17" and shall be hole punched and reinforcements added. Do not put drawings in pockets. Top of all drawings shall be at top or spine side of the manual. Complete drawings must be viewed without opening rings. Provide binders as manufactured by Universal Office Products, Des Plaines, IL. 1"(S# B2-20742), 1.5"(B2-20744), or 2"(B2-20746) or equal.

8.7.2.7 If the binder includes manuals from any single vendor covering several different model numbers, the model used on the Project must be highlighted.

8.7.2.8 Included in the front of the "Operation and Maintenance Manual" shall be a copy of the Interior and Exterior Finish plan and Schedule listing all finish materials, the manufacturer, the finish color, and the manufacturer's paint number.

8.7.2.9 Photograph album containing photos and negatives or digital images on CD (.pdf format) showing buried utilities and concealed items shall be included.

8.8 SUBMISSIONS – AS - BUILT SET OF DRAWINGS

8.8.1 The General Contractor shall submit one (1) electronic copy of As - Built set of drawings in .pdf format and one (1) hard copy indicating all deviations of construction as originally specified in the Contract Documents. These As-Built Drawings will compile information from the General Contractor as well as all Sub-contractors. The General Contractor shall provide a qualified representative to update the As - Built set of drawings as construction progresses.

8.8.2 The General Contractor shall provide and utilize a camera to photograph the installation of buried utilities and concealed items. The General Contractor shall provide standard 3 1/2" x 5" photographs with negatives, or digital images on CD (.jpeg format), which shall be submitted as part of the Operation and Maintenance Manuals submission. These photos should be mounted in a bound album with labeling as to subject of photo, date, and Project. Such album is to be kept at job site with the As - Built set of drawings until submittal of same.

8.8.3 Approval of the Final Payment request will be contingent upon compliance with these provisions. The General Contractor's As – Built set of drawings shall be delivered to the Consultant at their completion so that the Consultant may make any changes on the original contract drawings.

ARTICLE 09 PLANS, DRAWINGS, AND SPECIFICATIONS

9.1 The successful General Contractor will receive 2 sets of plans and specifications. General Contractor will be required to pay for cost of duplication for all sets required over and above this amount. Payments for Plans, Specifications and Official Contract Documents must be made to Lynn Imaging, Lexington, Kentucky (<http://www.ukplanroom.com/> or phone Lynn Imaging @ 1.800.888.0693 or 859.255.1021) before a set of documents will be issued.

9.2 The University will provide 2 sets of the ‘Official Contract Documents’ to the successful General Contractor. One (1) set is to be for his office and the other set is for the jobsite.

9.3 All drawings, specifications and copies thereof, prepared by the Consultant, are the property of the University of Kentucky. They are not to be used on other Work.

ARTICLE 10 PROGRESS MEETINGS

10.1 In addition to specific coordination and pre-installation meetings for each element of Work, and other regular Project meetings held for other purposes, progress meetings will be held as outlined at the Preconstruction Meeting. Each entity then involved in planning, coordination or performance of Work shall be properly represented at each progress meeting. The following areas will be covered at each progress meeting: current status of work in place; GENERAL CONTRACTOR’s review of upcoming work (1 month look ahead); schedule status; upcoming outages; new outage requests; shop drawings due from Sub-contractors; shop drawings being reviewed; outstanding RFIs; outstanding RFQs; new RFQs; change orders pending approval; new business; As-Built updated; close-out documents status; defective work in place issues; review of “pencil copy” of payment application; safety issues; and new business or other issues not covered above. With regard to schedule status, discuss whether each element of current work is ahead of schedule, on time, or behind schedule in relation with updated progress schedule; determine how behind-schedule Work will be expedited, and secure commitments from entities involved in doing so; discuss whether schedule revisions are required to ensure that current Work and subsequent Work will be completed within Contract Time; and review everything of significance which could affect the progress of the Work.

10.2 General Contractor shall prepare and submit at each progress meeting an updated schedule indicating Work completed to date and any needed revisions.

10.3 With the express purpose of expediting construction and providing the opportunity for cooperation of affected parties, progress meetings will be held and attended by representatives of:

- (1) The Owner's Project Manager
- (2) The Consultant.
- (3) General Contractor.
- (4) Sub-contractors.
- (5) Others requested to attend (as deemed necessary by CPMD).
- (6) Physical Plant Division Representative

10.4 A location near the site will be designated where such progress meetings will be held. Participants will be notified of the dates and times of the meetings by the Consultant.

ARTICLE 11 CONSTRUCTION SCHEDULE – BAR CHART

11.1 The General Contractor shall prepare construction schedules as a bar chart, with separate divisions for each major portion of the work, and in sufficient detail to identify the plan and sequence of construction to be followed in meeting the requirements of the Contract. Schedules shall include divisions for Work to be accomplished remote from the central construction site, e.g. utilities from outside the construction site to the site for chilled water, steam, electrical, communications, and/or fire service. Such Work shall be scheduled so that disruption resulting from construction will be minimized. Start dates and completion dates for such Work must be maintained and completed in the shortest reasonable time. The sequence of listings shall follow the Table of Contents of the Specifications. Maximum sheet size shall be 30" x 42". The schedule shall show the complete sequence of construction, by activity, with dates for beginning and completion of each element of the Work.

11.2 The schedule shall be submitted to the Consultant and to the Owner for review within thirty (30) calendar days after the date established for the start of Work on the Project as stated in the official Work Order and Notice to Proceed. Review will be only for general conformance to the requirements of the contract. Review comments and/or acceptance of the Contractor's schedule shall not relieve the Contractor of any obligation for compliance with all requirements of the Contract Documents. Such review and comments shall not constitute interference with the Contractor's means and methods of construction, which shall remain solely the responsibility of the Contractor.

11.3 Schedules shall be revised no less frequently than monthly to coincide with regular monthly Project progress meetings and submission of Applications for Payment and shall be updated to indicate progress of each activity to the date of submittal, the projected completion of each activity, any activities modified since previous submittal, any major changes in scope, and all other identifiable changes, and further shall be accompanied by a narrative report to define problem areas, anticipated delays, impact on the progress of the Work, and to report corrective action taken or proposed.

11.4 Initial schedules shall be submitted within thirty (30) calendar days after the date established in Notice to Proceed. After review, required revisions to the schedule shall be completed and incorporated in the schedule within 10 calendar days. Up-dated Progress Schedules shall be submitted with each Application for Payment. Submissions must include one opaque reproduction and one electronic copy (disk or CD) along with a transmittal letter.

11.5 Copies of reviewed Schedules are to be provided to the job site file and, as appropriate, to sub-contractors, suppliers, and other concerned entities, including separate contractors. Recipients are to be instructed to promptly report, in writing, problems anticipated by projections shown in schedules.

11.6 The processing of all progress payments is contingent upon the submission of updated schedules.

11.7 The processing of all Change Orders requesting a time extension to the contract are contingent upon the submission and approval of a revised schedule demonstrating that the change order does impact the date

of completion for the entire project. Time extension requests associated with Change Orders that do not impact the date of completion for the entire project will be rejected.

ARTICLE 12 WALK-THROUGH

12.1 After the "Work Order" is issued but before Work by the General Contractor is started, a walk-through of the area is required to document the condition of the space, surfaces, or equipment. It is the responsibility of the General Contractor to schedule the walk-through with the Owner's Project Manager, the Consultant, and other interested parties.

12.2 During the walk-through, General Contractor shall identify all damaged surfaces or other defective items that exist prior to construction.

12.3 The walk-through shall be attended by Owner's Project Manager, a Representative of the user of the facility, the General Contractor and the Consultant

12.4 Written documentation of the walk-through is to be provided by the Consultant with copies distributed to all parties. Polaroid type color photographs are to be provided and labeled by General Contractor and one (1) copy of such photographs are to be given to Consultant. (Digital photos in a .jpg format are acceptable if submitted on a CD) All parties attending the walk-through agree on the list of damages.

ARTICLE 13 OWNER'S CONSTRUCTION REPRESENTATIVE

13.1 RESIDENT INSPECTOR Not used.

ARTICLE 14 FIELD OFFICE

14.1 General Contractor shall make his own provision for field office for his own personnel and for incidental use by their Sub-contractors. Quantity and location are subject to approval of the Consultant and the Owner's Project Manager.

14.2 Not used.

ARTICLE 15 TELEPHONE SERVICE

15.1 General Contractor shall arrange through UKIT Communications and Network Systems for installation of on-site phone, internet and other communications services. Telephone service during the length of construction shall be paid for by the General Contractor. (Cell phone/Nextel service in lieu of UKIT Communications and Network Systems phone service may be utilized at General Contractor's option.)

ARTICLE 16 CONSTRUCTION FENCE

16.1 Construction fencing will be designed and erected around job sites where there is a possibility of injury to employees, students or the public. Special precautions must be taken to protect the visually impaired, disabled, children and others using the University facilities. During active excavation/trenching operations, fencing shall be erected to prevent unauthorized entry into the site. All fencing shall comply with the current requirements of the International Building Code except where the following requirements are more stringent.

16.1.1 Not used.

16.1.2 All job site perimeter fencing more than 5 feet from a walkway, street, plot line, or public right-of-way shall be a minimum of 6 feet in height unless International Building Code requirements are more restrictive due to the height of the structure and setback..

16.1.3 All fencing shall be of a woven material such as chain link or a solid type fence. Fencing shall include gates required for construction operations. Gates shall be lockable with both the General Contractor's lock, and a lock provided by the Owner. Lock by Owner shall be keyed for the University Best GA key core. All locks to be "daisy-chained" to provide access to the Owner.

16.1.4 It shall be the General Contractor's responsibility to determine the proper quality of materials and methods of installation of the fencing, with the understanding that it must be maintained in good condition, good appearance, rigid, plumb, and safe throughout the construction period. The fence does not have to be new material. The fence is to be erected on fence posts securely anchored in the ground. Provide a top bar or, with prior approval of the owner, a wire shall be run through the top of the fence and attached to the end posts. A tension control device shall be installed as necessary. Use of sandbags, concrete weights, stakes, etc. to hold fence posts in place are not allowed. Penetrations in pavement or landscape walking surfaces may not be made without the approval of the owner. Any damage caused by the fence installation shall be repaired in a manner satisfactory to the owner. When fencing is to remain in place for six (6) months or more a green fabric mesh must be provided for the full height and length of the fence. Fabric should be omitted for one (1) section of fencing where blind corners occur or at pedestrian/vehicle intersections.

16.1.5 The General Contractor shall be responsible for removing and replacing any fence sections and/or posts necessary for access to the site on a daily basis. The General Contractor shall police such conditions to assure the fence and posts are reset in a timely manner and are specifically in place at the close of the working day.

16.1.6 If the General Contractor fails to comply with the requirements of this Article 16, the Owner may proceed to have the work done and the General Contractor shall be charged for the cost of the Work done by unilateral deductive change order.

16.1.7 Not used.

ARTICLE 17 PROJECT SIGN

17.1 The General Contractor shall furnish, install and maintain a Project sign during this Project. This sign shall be 4' x 8' x 3/4" exterior grade plywood mounted on 4" x 4" posts. Design shall be as provided by the Owner at a later date and shall include the name of the Owner, Project, Consultant, and General Contractor.

17.2 No signs, except those attached to vehicles or equipment, may be displayed without permission from the Consultant and the Owner's Project Manager. No political signs will be permitted.

ARTICLE 18 PARKING

18.1 The University of Kentucky will make available for purchase by the General Contractor up to four (4) parking permits. The category of parking permit and location of parking is determined by the Director, Parking and Transportation Services, or a designee. Parking permits may be purchased by the General Contractor to be used by the Contractor and/or the Contractor's subcontractors and employees during the construction period. The cost of each permit is based on the pro-rata annual cost and may be purchased from Parking Services, 721 Press Avenue, after the Contract is executed. Necessary documents required to purchase the passes will be available at the Pre-Construction Conference.

18.2 The Director, Parking and Transportation Services, or a designee will determine if parking is available for employees of the Contractor and subcontractors in the K lots at Commonwealth Stadium or elsewhere on Campus. The Contractor will be given thirty (30) days' notice should conditions change that will affect parking at the designated parking area and it is necessary to relocate parking or terminate

parking privileges. If parking is available, permits may be purchased from Parking Services, 721 Press Avenue at the appropriate monthly cost.

ARTICLE 19 SANITARY FACILITIES

19.1 At the beginning of the Project, before any Work is started, the General Contractor shall furnish, install and maintain ample sanitary facilities for the workforce. Permanent toilets in the existing building shall not be used during construction of the Project. Drinking water shall be provided from an approved safe source, piped or transported as to be kept clean and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing governing health regulations.

ARTICLE 20 RULES OF MEASUREMENT

20.1 Rules of Measurement shall be established by the Consultant in the field. Actual measurement shall be taken in the field. These amounts shall become binding upon the General Contractor and be adjusted as before mentioned.

20.2 The General Contractor shall pay for and coordinate through the Consultant and/or the Owner's Project Manager all associated Work by utility companies including relocation of utility poles, installation of new street lights, relocation of overhead or underground lines, and any other Work called for on the Plans and in the Specifications.

ARTICLE 21 ALLOWANCES

21.1 As stated in the General Conditions to the Contract, the General Contractor shall have included in the Contract Amount all costs necessary to complete the Work. Costs based on "allowances" shall be permitted only for objectively quantifiable items in accordance with Section 01020.

ARTICLE 22 SEQUENCE OF CONSTRUCTION

22.1 The Project will occur simultaneously with the construction of 2336.0, UK/FEMA Flood Mitigation Project. The Contractor will attend a coordination meeting with that contractor to plan storm drainage tie-in, pavement interfacing, overlap of erosion control items, coordination of construction entrance, and installation of parking lot lights and electrical.

22.2 All materials and equipment are to be brought into the project site from the approved staging location and are not to be brought through the existing buildings or loading docks. Any and all exceptions shall be approved by, and closely coordinated with, the Owner's Project Manager in advance of scheduling or performing the work.

22.2.1 The General Contractor shall coordinate any road and sidewalk closings, utility disruptions, etc. which will affect the use of the existing building(s) with the Owner's Project Manager prior to commencing that Work.

22.3 The adjacent buildings and public areas will remain in use and the Owner shall have access to the existing building(s) throughout the duration of the Project. The General Contractor shall coordinate construction activity to assure the safety of those who must cross the Project site and shall provide and maintain the necessary barriers and accommodations for a completely safe route of accessibility.

22.4 The General Contractor shall cooperate with the Owner to minimize inconvenience to, or interference with normal use of existing buildings and grounds by staff, students, other Contractors, or the public. General Contractor shall conduct operations to prevent damage to adjacent building structures and other facilities and in such a manner to protect the safety of building's occupants.

22.5 Special effort shall be made by the General Contractor to prevent any employee from entering existing buildings for reasons except construction business. In particular, use of toilets, drinking fountains, vending machines, etc. is strictly prohibited.

ARTICLE 23 CRANE & MATERIAL HOIST OPERATIONS

23.1 General Contractor shall provide appropriate barriers around crane and material hoist to protect pedestrian-and vehicular traffic around operating area. When crane is operating or moving, flag men provided by General Contractor shall be utilized to prevent pedestrian and vehicular traffic from crossing the pathway of crane lift. General Contractor's flag men shall coordinate these activities with the appropriate security personnel.

23.2 Cranes and material hoists shall be safely secured and inaccessible during non-operating hours. General Contractor shall coordinate operation or erection of a crane or material hoist in the vicinity of the Medical Center with Medical Center Aeromedical Operations (Med-evac helicopter).

23.3 Any damage to trees, shrubs or plant material at the placement of crane or material hoist shall be repaired by tree surgery or replaced as directed by Consultant.

ARTICLE 24 UTILITIES

24.1 This Article modifies Article 8 of the General Conditions. The Owner will provide water and electricity for this Project. The General Contractor shall provide for all temporary taps, hoses, lines, boxes, lighting and installation of the same for construction operations. Electricity shall not be used for heating purposes. In the event that the General Contractor is wasteful with these utilities, the Owner shall charge the General Contractor accordingly.

24.2 UTILITY OUTAGES

24.2.1 Interruption of Utilities and Services: No utilities or services may be interrupted without full consent and prior scheduling of the Owner. Owner approval is required in writing for each disruption.

24.2.1.1 ENTIRE BUILDING OUTAGE

Not used.

24.2.1.2 SECTION OF A BUILDING OUTAGE

Not used.

ARTICLE 25 CLEANING AND TRASH REMOVAL

25.1 The General Contractor shall keep clean the entire area of new construction and shall keep streets used as access to and from the site free of mud and debris.

25.2 All exit ways, walks, drives, grass areas, and landscaping must be kept free from debris, materials, tools and vehicles at all times. Trim weeds and grass within the site area.

25.3 Upon completion of the Work, General Contractor shall thoroughly clean and re-sod grass areas damaged to match existing areas.

25.4 The General Contractor shall be responsible for removal from the site of all liquid waste or other waste (i.e. hazardous, toxic, etc.) that requires special handling on a daily basis.

25.5 Dumpsters will be provided and maintained by the General Contractor.

25.6 During Work at the Project site, the General Contractor shall clean and protect Work in progress and adjoining Work on a continuing basis. General Contractor shall apply suitable protective covering on newly installed Work where needed to prevent damage or deterioration until the time of Substantial Completion. General Contractor shall clean and perform maintenance on newly installed Work as frequently as necessary through remainder of construction period.

25.7 The General Contractor shall be responsible for daily cleaning of spillage's and debris resulting from his and his Sub-contractor's operations, and for providing closed, tight fitting, waste receptacles to transport construction debris from the work area to the dumpster. The General Contractor shall empty such receptacles into the trash container when full or when directed to be emptied by the Consultant and/or Owner's Project Manager, but not less than weekly.

25.8 Failure to comply with the above requirements shall be cause for stopping work until the condition is corrected.

ARTICLE 26 BLASTING

26.1 Blasting will be allowed on this Project as specified. Additional insurance coverage on the part of the General Contractor/ Sub-contractor for damages from blasting is required. This additional insurance will be an endorsement adding X, C, and U to the Comprehensive General Liability Policy as required by the General Conditions Article 35. This endorsement is based on the following buildings and furnishings whose assessed value is as follows:

| BUILDING | BUILDING VALUE | FURNISHING VALUE | TOTAL |
|----------------------|--|------------------|--------------|
| 1. Memorial Hall | \$ 976,000 | \$150,000 | \$1,126,000 |
| 2. Engineering Tower | \$4,356,000 | \$422,000 | \$4,778,000 |
| 3. Mining Lab | \$ 882,700 | \$483,000 | \$1,355,700 |
| | Total Value of Buildings and Equipment | | \$35,936,000 |

The limits for X, C, and U endorsement for blasting must be a minimum of \$20,000,000.

26.2 The delivery route of blasting materials to the campus must be approved by the UK Fire Marshall, UK Police Department, the Lexington-Fayette Urban County Government Police Department, and the Owner's Project Manager prior to delivery of any blasting materials. During the Contract Time period the General Contractor shall notify the UK Police Department 24 hours prior to delivery, confirming the delivery route, the time and date of delivery, and the amount of explosives carried. The General Contractor shall designate magazines used for storage of caps and explosives, plus the amount stored in each magazine. General Contractor shall adhere to the American Table of Distance for storage of explosives, and limit overnight storage of 'Class-A' explosives to one day supply. It is strongly recommended, however, not to store explosives overnight.

ARTICLE 27 CUTTING AND PATCHING - NEW AND EXISTING WORK

27.1 New Work - Cutting and patching shall be done by craftsmen skilled and experienced in the trade or craft that installed or furnished the original Work. Repairs shall be equal in quality and appearance to similar adjacent Work and shall not be obviously apparent as a patch or repair. Work that cannot be satisfactorily repaired shall be removed and replaced.

27.2 Existing Construction - Refer to Architectural, Mechanical, and Electrical drawings for cutting and patching. All new Work shall be connected to the existing construction in a neat and workmanlike manner, presenting a minimum of contrast between old and new Work. Do all patching of the existing construction as may be required for the new construction to be done. Necessary patching, closing of existing openings, repairing and touching up shall be included as required for a proper, neat and workmanlike finished

appearance. Any existing item that is to remain and is damaged during construction shall be replaced at the General Contractor's expense.

ARTICLE 28 UNRELATED PROJECTS

28.1 Unrelated construction Projects may be under way in the vicinity of this Project or the site utility work during the course of the Work related to this Project. The General Contractor for this Project must coordinate with any other contractors regarding overlapping areas. See Article 42 - Separate Contracts of the General Conditions.

ARTICLE 29 OWNER SUPPLIED MATERIALS

29.1 Not used.

29.2 Not used.

ARTICLE 30 REMOVED ITEMS

30.1 The following is a list of items to be turned over to the Owner by the General Contractor after removal by the General Contractor. If there are additional items listed in the drawings to be turned over to the Owner, but not listed here, it shall be construed as being listed here.

1. Electrical boxes (panels).

30.2 All items which are identified to be turned over to the Owner must be treated with the utmost care and protected during removal and transport from damage.

30.3 Materials to be turned over to the Owner by the General Contractor shall be delivered to a warehouse within a five (5) mile radius of the Project site.

ARTICLE 31 INTERIOR ENCLOSURE AND DUST ENCAPSULATION

31.1 Not used.

31.2 Not used.

31.3 Not used.

31.4 Not used.

31.5 Not used.

31.6 Not used.

31.7 Not used.

31.8 Not used.

31.9 Not used.

31.10 Not used.

31.11 Not used.

31.12 Not used.

31.13 Not used.

ARTICLE 32 UKIT COMMUNICATIONS AND NETWORK SYSTEMS

32.1 Not used.

ARTICLE 33 EMERGENCY VEHICLE ACCESS

33.1 Emergency Vehicle Access must be maintained during construction. The General Contractor shall coordinate with the local Fire and Emergency Medical Services department(s) that would respond to an emergency during the initial startup of construction to ensure a complete understanding of their requirements.

ARTICLE 34 SMOKE DETECTORS / FIRE ALARM SYSTEMS- EXISTING AND/OR NEW FACILITIES

34.1 Not used.

34.1.1 Not used.

ARTICLE 35 SURVEYS, RECORDS, and REPORTS

35.1 General: Working from lines and levels established by property survey, and as shown in relation to the Work, the General Contractor will establish and maintain bench marks and other dependable markers to set lines and levels for Work at each area of construction and elsewhere on site as needed to properly locate each element of the entire Project. The General Contractor shall calculate and measure from the bench marks and dependable markers required dimensions as shown (within recognized tolerances if not otherwise indicated), and shall not scale drawings to determine dimensions. General Contractor shall advise Sub-contractors performing Work of marked lines and levels provided for their use in layout of Work.

35.2 Survey Procedures: The General Contractor shall verify layout information shown on drawings, as required for his own Work. As Work proceeds, surveyor shall check every major element for line, level, and plumb (as applicable), and maintain an accurate Surveyor's log or Record Book of such checks available for General Contractor or Design Consultant's reference at reasonable times. Surveyor shall record deviations from required lines and levels, and advise Design Consultant or General Contractor promptly upon detection of deviations exceeding indicated or recognized tolerances. The General Contractor shall record deviations which are accepted (not corrected) on Record Drawings.

ARTICLE 36 TOBACCO PRODUCTS PROHIBITED

36.1 For areas located within Fayette County, Kentucky, the use of all tobacco products is prohibited on all property that is owned, operated, leased, occupied, or controlled by the University. "Property" for purposes of this paragraph includes buildings and structures, grounds, parking structures, enclosed bridges and walkways, sidewalks, parking lots, and vehicles, as well as personal vehicles in these areas. To view the Lexington campus boundaries: <http://www.uky.edu/TobaccoFree/files/map.pdf>.

36.2 For areas not located within Fayette County, Kentucky, smoking is prohibited in all owned, operated, leased, or controlled University buildings and structures, parking structures, enclosed bridges and walkways, and vehicles. Smoking is also prohibited outside buildings and structures within 20 feet of entrances, exits, air intakes, and windows, unless further restricted by division policy.

36.3 General Contractor employees violating this prohibition will be subject to dismissal from the Project.

36.4 For the full Administrative Regulation see University AR 6:5.
<http://www.uky.edu/Regs/files/ar/ar6-5.pdf>

ARTICLE 37 ALTERNATES

37.1 Alternate(s) will be accepted in the sequence of the Alternates listed on the Bid Form, and the lowest Bid Sum will be computed on the basis of the sum of the base Bid and any alternates accepted, within the budgeted amount.

37.2 Schedule of Alternates: No Alternates.

ARTICLE 38 FIELD CONSTRUCTED MOCK UPS

38.1 Not used.

38.2 Not used.

ARTICLE 39 PROJECT COORDINATION VIA COMPUTER

39.1 The General Contractor is required to have an active email account to facilitate coordination of the project during construction and warranty.

39.2 To facilitate project construction coordination between the Consultant, the General Contractor, and the University of Kentucky as the Owner, UK Capital Project Management Division (CPMD) is hosting an Internet/ Web-based Project Management System (WPMS) to help improve project communication and collaboration. The Consultant shall participate in the use of the WPMS (Constructware® or other system at the Owner's discretion) providing collaboration between Owner, the Consultant and selected contractors.

39.2.1 Owner shall provide the General Contractor with up to six user accounts and appropriate training for the web-based project management tool.

39.2.2 Utilization of, and training in the use of, the WPMS will be arranged for and supervised by Owner.

39.2.3 Participation of General Contractor is mandatory; others as determined by Owner.

39.2.4 All participants are required to have access to the internet and the Microsoft Internet Explorer browser (version 5.0 or higher). A broadband connection to the internet (e.g. Cable modem, ISDN, DSL) is recommended, but not required.

39.2.5 The WPMS shall be utilized for the following functions, as a minimum: Posting of Project Notices, Correspondence logging, Messaging between team members, emails to contacts outside of the team, Meetings (agendas, minutes, scheduling, item tracking), Discussions, Document Management (Daily Reports, Drawing Log, File Director, Punch Lists, RFIs, Submittals, Transmittals, Change Items, RFQs, and Site Inspections), and Cost Management (Contracts, Budgets, Purchase Orders, Pay Apps (pencil review), Contractor Change Requests and Change Orders).

39.2.6 Not used.

39.2.7 Not used.

39.2.8 Not used.

ARTICLE 40 HOT WORK PERMITS

40.1 Not used.

ARTICLE 41 INSURANCE

41.1 Employers' Liability Insurance. The General Contractor shall acquire and maintain Employers' Liability insurance with at least \$500,000/\$500,000/\$500,000 (VERIFY NUMBER AMOUNTS) limits of liability for all employees who will be working at the Project site.

41.2.1 Commercial General Liability Insurance. If the work involved requires the use of helicopters, a separate aviation liability policy with limits of liability of \$100,000,000 (VERIFY NUMBER AMOUNT) will be required. If cranes and rigging are involved, a separate inland marine policy with liability limits of \$100,000,000 (VERIFY NUMBER AMOUNT) will be required.

41.2.1.1 The limits of liability shall not be less than \$5,000,000 (VERIFY NUMBER AMOUNT) each occurrence combined single limits for bodily injury and property damage. If split limits are used, they shall not be less than \$2,000,000 (VERIFY NUMBER AMOUNT) for each person and each occurrence and \$1,000,000 (VERIFY NUMBER AMOUNT) for property damage.

41.2.2 Comprehensive Automobile Liability Insurance. Policy limits shall not be less than \$2,000,000 (VERIFY NUMBER AMOUNT) for combined single limits for bodily injury and property damage for each occurrence. As an alternative, split limits of not less than \$1,000,000 (INSERT NUMBER AMOUNT) for bodily injury and \$500,000 (VERIFY NUMBER AMOUNT) for property damage for each occurrence shall be maintained.

41.2.3 Excess or Umbrella Liability Insurance. This policy shall have a minimum of \$100,000,000 (VERIFY NUMBER AMOUNT) combined single limits for bodily injury and property damage for each occurrence in excess of the applicable limits in the primary policies.

41.2.4 Workers' Compensation - Statutory Requirements (Kentucky)

ARTICLE 42 KEY ACCESS

42.1 Not used.

42.2 Not used.

42.3 Not used.

A F F I D A V I T

Comes the affiant and after having been duly sworn states as follows:

1. That affiant is the contractor awarded a contract by the University of Kentucky on Project 2393.0 South Campus Parking Lot, Lexington Kentucky.
2. That all contractors and subcontractors employed, or that will be employed, under the provisions of this contract are in compliance with Kentucky requirements for Workers' Compensation Insurance according to KRS Chapter 342 and Unemployment Insurance according to KRS Chapter 341.

Further, the affiant sayeth naught.

By: _____

Title: _____

Contractor: _____

State of _____)

County of _____)

Subscribed and sworn to before me by _____ on this _____

day of _____, 2014.

My commission expires _____

Notary Public, State at Large

**UNIVERSITY OF KENTUCKY
CAPITAL CONSTRUCTION PROCUREMENT SECTION**

PAYMENT BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the University of Kentucky (the "Owner") and Contractor. (the "Principal") have entered into a contract for the construction of Project 2393.0 South Campus Parking Lot, with the contract price or amount of \$ _____ (the "Project")

WHEREAS, the Principal is required to furnish a payment bond for the protection of all persons performing, supplying, or furnishing labor, materials, equipment, or supplies to the contractor or its subcontractors for the performance of the work provided for in the contract, including security for payment of all unemployment contributions which become due and payable under Kentucky unemployment insurance law, in an amount equal to one hundred percent (100%) of the original contract price or amount, executed by a surety company authorized to do business in the Commonwealth of Kentucky, and satisfactory to the Commonwealth; and

WHEREAS, _____ (the "Surety"), a surety company authorized to do business in the Commonwealth of Kentucky, has agreed to issue such bond.

NOW, THEREFORE, for the value received and intending to be legally bound hereby, the Principal and Surety agree to the following terms and conditions of this obligation:

1. **Recitations:** The recitals above are true and substantive parts of this instrument.
2. **Definitions:** The following terms are defined for the purposes of this instrument:
 - (a) **Bond** means this instrument and the terms and conditions of the Contract (as defined herein), both express and implied, which are incorporated herein by reference and constitute a part of this instrument to the same extent and effect as though copied verbatim herein, and are legally binding on the Principal and Surety including the obligations of the Surety provided therein.
 - (b) **Claimants** means all persons having just claims for (i) labor, materials, services, insurance, supplies, machinery, equipment, rentals, fuels, oils, implements, tools, appliances, and any other items of whatever nature, furnished for, used or consumed in the prosecution of the work called for by the Contract, whether lienable or non-lienable and whether or not permanently incorporated in said work; (ii) pension, welfare, vacation, and other supplemental employee benefit contributions payable under collective bargaining agreements with respect to persons employed upon said work; and (iii) federal, state, and local taxes and contributions required by law to be withheld and paid with respect to the employment of persons upon said work.

- (c) **Contract** means that certain agreement dated [DATE] for the construction of Project 2393.0 South Campus Parking Lot,, all documents that comprise the agreement, any documents incorporated therein by reference, and any Contract Changes (as defined herein).
- (d) **Contract Change** means any change order, change of time, extension of time, amendment, modification, addition, or other alteration, material or otherwise, to the Contract, the contract price or amount, the work to be performed under the Contract, or the specifications accompanying same.
3. **Guaranty:** The Principal and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner, as obligee of the Bond, to pay all Claimants. The Principal and Surety likewise guarantee the faithful payment of the prevailing hourly wage as set forth in the schedule incorporated into the bid documents unless the Project is exempt from the prevailing wage requirements of KRS 337.505 through 337.550.
4. **Bond Amount:** The bond amount is \$[AMOUNT], which shall be increased automatically by Contract Changes to the contract price or amount and shall not limit the Surety's obligation or liability under the Bond for paying attorney fees, costs, or other legal expenses incurred by the Owner, which may be in excess of the bond amount as increased.
5. **Defeasance:** Except as provided by the Contract, the Principal and Surety shall have no obligations under the Bond if the Principal during the original term of the Contract, any extensions thereof which may be granted by the Owner with or without notice to the Surety, the guaranty period, the warranty period, and other periods limited only by statutes of limitation (a) promptly pays all Claimants; (b) satisfies all claims and demands incurred under the Contract; and (c) fully indemnifies and saves harmless the Owner from all costs, damages, attorney fees, consultant fees, and other expenses that it may suffer by reason of the Principal's failure to do so. The Bond will otherwise remain in full force and effect.
6. **Amendment:** The Bond, including without limitation the Bond Amount, will be deemed amended, automatically and immediately without separate or written amendments hereto, upon any Contract Changes. The Principal and Surety agree to be bound by any Contract Changes. The Surety waives notice of any Contract Changes.
7. **Interpretation:** The Bond will be interpreted and enforced in accordance with Kentucky law. The Principal and Surety agree that they have taken part in drafting the Bond, which will not be construed against or in favor of any other party on the basis of drafting. To the extent that this instrument contradicts the Contract, the Contract will control.
8. **Beneficiaries:** The Principal and Surety agree that (a) the Bond will insure to the benefit of the Owner and all Claimants (collectively the "Beneficiaries"), whether or not they have any direct contractual relationship with the Principal; (b) the Beneficiaries may maintain independent actions upon this Bond in their own names; and (c) no final settlement between the Owner and Principal will abridge the right of other Beneficiaries with unsatisfied claims.

IN WITNESS WHEREOF, the Principal and Surety, by their duly authorized representatives, have executed this instrument, which is effective as of [DATE].

ATTEST:

WITNESSES:

PRINCIPAL

Witness as to PRINCIPAL

By

Witness as to PRINCIPAL

Title

ATTEST:

WITNESSES:

SURETY

Witness as to SURETY

By

Witness as to SURETY

Attorney-in-Fact

**UNIVERSITY OF KENTUCKY
CAPITAL CONSTRUCTION PROCUREMENT SECTION**

PERFORMANCE BOND

Bond Number: [NUMBER]

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the University of Kentucky (the “Owner”) and Contract (the “Principal”) have entered into a contract for the construction of Project 2393.0 South Campus Parking Lot, with the contract price or amount of \$[AMOUNT] (the “Project”);

WHEREAS, the Principal is required to furnish a performance bond for the faithful performance of the contract in an amount equal to one hundred percent (100%) of the contract price or amount as it may be increased, executed by a surety company authorized to do business in the Commonwealth of Kentucky, and satisfactory to the Commonwealth; and

WHEREAS, [SURETY’S NAME] (the “Surety”), a surety company authorized to do business in the Commonwealth of Kentucky, has agreed to issue such bond.

NOW, THEREFORE, for the value received and intending to be legally bound hereby, the Principal and Surety agree to the following terms and conditions of this obligation:

1. **Recitations:** The recitals above are true and substantive parts of this instrument.
2. **Definitions:** The following terms are defined for the purposes of this instrument:
 - (a) **Bond** means this instrument and the terms and conditions of the Contract (as defined herein), both express and implied, which are incorporated herein by reference and constitute a part of this instrument to the same extent and effect as though copied verbatim herein, and are legally binding on the Principal and Surety including the obligations of the Surety provided therein.
 - (b) **Contract** means that certain agreement dated [DATE] for the construction of Project 2393.0 South Campus Parking Lot,, all documents that comprise the agreement, any documents incorporated therein by reference, and any Contract Changes (as defined herein).
 - (c) **Contract Change** means any change order, change of time, extensions of time, amendment, modification, addition, or other alteration, material or otherwise, to the Contract, the contract price or amount, the work to be performed under the Contract, or the specifications accompanying same.
3. **Guaranty:** The Principal and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner, as obligee of the Bond, for the full and faithful performance of the Contract and any Contract Changes. The Principal and Surety likewise guarantee the faithful performance of the prevailing hourly wage as set

forth in the schedule incorporated into the bid documents unless the Project is exempt from the prevailing wage requirements of KRS 337.505 through 337.550.

4. **Bond Amount:** The bond amount is \$[AMOUNT], which shall be increased automatically by Contract Changes to the contract price or amount and shall not limit the Surety's obligation or liability under the Bond for paying attorney fees, costs, or other legal expenses incurred by the Owner, which may be in excess of the bond amount as increased.
5. **Defeasance:** Except as provided by the Contract, the Principal and Surety shall have no obligations under the Bond if the Principal during the original term thereof, any extensions thereof which may be granted by the Owner with or without notice to the Surety, the guaranty period, the warranty period, and other periods limited only by statutes of limitation (a) well, truly, and faithfully performs its duties to the Owner; (b) performs the Contract; (c) satisfies all claims and demands incurred under the Contract; (d) fully indemnifies and saves harmless the Owner from all costs, damages, attorney fees, consultant fees, and other expenses that it may suffer by reason of the Principal's failure to do so; and (e) reimburses and repays the Owner all such expenses and outlay, without limitation, which the Owner may incur in making good any default. The Bond will otherwise remain in full force and effect.
6. **Amendment:** The Bond, including without limitation the Bond Amount, will be deemed amended, automatically and immediately without separate or written amendments hereto, upon any Contract Changes. The Principal and Surety agree to be bound by any Contract Changes. The Surety waives notice of any Contract Changes.
7. **Interpretation:** The Bond will be interpreted and enforced in accordance with Kentucky law. The Principal and Surety agree that they have taken part in drafting the Bond, which will not be construed against or in favor of any other party on the basis of drafting. To the extent that this instrument contradicts the Contract, the Contract will control.

IN WITNESS WHEREOF, the Principal and Surety, by their duly authorized representatives, have executed this instrument, which is effective as of [DATE].

ATTEST:

WITNESSES:

PRINCIPAL

Witness as to PRINCIPAL

By

Witness as to PRINCIPAL

Title

ATTEST:

WITNESSES:

SURETY

Witness as to SURETY

By

Witness as to SURETY

Attorney-in-Fact



MBE/WBE Participation Goals

PART 1 - GENERAL

- 1.1 The University of Kentucky requests all potential contractors to make a concerted effort to include Minority-Owned (MBE) and Woman-Owned (WBE) Business Enterprises as subcontractors or suppliers in their bids.
- 1.2 Toward that end, the University of Kentucky has established 10% of total procurement costs as a Goal for participation of Minority-Owned and Woman-Owned Businesses on this contract.
- 1.3 **It is therefore a request of each Bidder to include in its bid, 10% for MBE/WBE participation and other requirements as outlined in this section.**

PART 2 - PROCEDURES

- 2.1 The successful bidder will be required to report to the University of Kentucky, the dollar amounts of all purchase orders submitted to Minority-Owned or Woman-Owned subcontractors and suppliers for work done or materials purchased for this contract.
- 2.2 Replacement of a Minority-Owned or Woman-Owned subcontractor or supplier listed in the original submittal must be requested in writing and must be accompanied by documentation of Good Faith Efforts to replace the subcontractor / supplier with another MBE/WBE Firm; subject to approval by the University of Kentucky.
- 2.3 For assistance in identifying qualified, certified businesses to solicit for potential contracting opportunities, bidders may contact:
 - A. The University of Kentucky, Facilities Management Contractor/Supply chain Coordinator (859-257-3204)
 - B. Tri-State Minority Supplier Development Council in Louisville, KY (502-625-0135)
 - C. The Kentucky Cabinet for Economic Development, Small & Minority Business Division in Frankfort, KY (502-564-2064)
 - D. The Office of Equal Employment Opportunity, Contract Compliance Division in Frankfort, KY (502-564-2874)
- 2.4 The University of Kentucky will make every effort to notify interested MBE/WBE subcontractors and suppliers of each Bid Package, including information on the scope of work, the pre-bid meeting time and location, the bid date, and all other pertinent information regarding the project.

PART 3 - DEFINITIONS

- 3.1 A Minority-Owned Business Enterprise (MBE) is defined as a business which is certified as being at least 51 % owned and operated by persons of Hispanic or Latino ethnicity (Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin), or Black or African American, American Indian or Alaska Native, Asian, or Native Hawaiian or Other Pacific Islander race.
- 3.2 A Woman-Owned Business Enterprise (WBE) is defined as a business which is certified as being at least 51% owned and operated by one or more Non-Minority Females.

PART 4 - OBLIGATION OF BIDDER

- 4.1 **The bidder shall make a Good Faith Effort to achieve the Participation Goal for MBE/WBE subcontractors/suppliers. The failure to meet the goal shall not necessarily be cause for disqualification of the bidder; however, bidders not meeting the goal are required to furnish with their bids written documentation of their Good Faith Efforts to do so.**
- 4.2 Award of Contract shall be conditioned upon satisfaction of the requirements set forth herein.
- 4.3 The Form of Proposal includes a section entitled “Identification of Minority Subcontractors and Material Suppliers”. The Advertisement for Bid includes a section entitled “Minority Business Participation”. The Determination of Responsibility includes a section entitled “Participation of Minority and Women owned contractors and businesses”. The applicable information must be completed and submitted as outlined.
- 4.4 **Failure to submit this information as requested may be cause for rejection of the bid.**

PART 5 - DOCUMENTATION REQUIRED

- 5.1 The prime contractor must provide the University of Kentucky with a “MBE/WBE percent of contract report “detailing subcontracting activity within 90 days of prime contract award. Projects containing multiple bid packs will update reports within 90 days of contract award throughout project duration. The report shall reflect the total dollar amount awarded to all MBE/WBE subcontractors (including suppliers) utilized under this contract.
- a. Prime Contractors will report the following items individually to satisfy reporting requirements
 - i. Project Name, UK Project Number, and UK CPMD Project Manager assigned to the project
 - ii. Total dollar value of the prime contract with the University of Kentucky
 - iii. Total dollar value of all contracts assigned to MBE firms
 - iv. Total dollar value of all contracts assigned to WBE firms
- 5.2 Bidders not reaching the Goal must submit both the “MBE/WBE percent of contract report “ and a written statement documenting their Good Faith Effort to do so (If bid includes no MBE/WBE participation, bidder shall enter “None” on the subcontractor / supplier form). In addition, the bidder may submit the following as proof of Good Faith Efforts to meet the Participation Goal:
- A. Advertisement by the bidder of MBE/WBE Contracting opportunities associated with this bid in at least two (2) of the following:

1. A periodical in general circulation throughout the region
 2. A Minority-Focused periodical in general circulation throughout the region
 3. A Trade periodical aimed at the MBE/WBE community in general circulation throughout the region
 4. Bidder shall include copies of dated advertisement with his submittal
- B. Evidence of written notice of contracting opportunities to at least five (5) MBE/WBE firms serving the construction industry at least seven (7) days prior to the bid opening date.
- C. Copies of quotations submitted by MBE/WBE firms which were not used due to uncompetitive pricing or other factors and/or copies of responses from firms that were contacted indicating that they would not be submitting a bid.
- D. Documentation of Bidder's utilization of the agencies identified to help locate potential MBE/WBE firms for inclusion on the contract including responses from agencies.
- E. Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement. "Record of MBE/WBE Solicitation" and other required documentation of Good Faith Efforts are to be submitted with the bid, if participation Goal is not met.

University of Kentucky – Capital Project Management
 MBE/WBE Percent of Contract Report

1) Identification of Participating MBE/WBEs

Project Name / Number: _____

UK Project Manager: _____

Total Contract Value: _____

| MBE/WBE Name, Address & Phone | MBE or WBE | Work to be Performed | Dollar Value of Work | % Value of Total Contract |
|-------------------------------------|---------------|-------------------------|-------------------------|------------------------------|
| 1. | | | \$ | % |
| 2. | | | \$ | % |
| 3. | | | \$ | % |
| 4. | | | \$ | % |

The undersigned submits the above list of MBE/WBE firms to be used in accomplishing the work contained in this Bid.

Company: _____ By: _____

Date: _____ Title: _____

AGREEMENT BETWEEN
UNIVERSITY OF KENTUCKY
AND CONTRACTOR

THIS AGREEMENT, made the _____ day of _____ 2014 by and between
"_____" ("Contractor"), and the UNIVERSITY OF KENTUCKY, ("Owner"), is to bind the parties
hereto to the principles and terms set forth herein, and shall be binding upon the parties hereto.

WITNESSETH, that the Contractor and Owner for the consideration hereinafter named, agree as follows:

ARTICLE No. 1 SCOPE OF WORK:

The work is located in Lexington, Kentucky on the University of Kentucky campus, near the E. S. Good Barn and Farm Road: Earthwork for the parking lot with underground detention basin; furnishing and installation of new storm sewer manholes; furnishing and installation of 30-inch and 18-inch storm sewers and accessories; landscaping; removal of existing storm sewers and accessories, all sizes; removal of overhead electrical lines and poles; installation of parking lot lighting, and accessories.

PROJECT #2393.0 South Campus Parking Lot

The Scope of Work consists of the Invitation for Bid, CCK-1952-14 dated April 16, 2014; the Contractor's Form of Proposal dated April 30, 2014, including Addendum 1, 2, 3, etc., the General Conditions, the Special Conditions, the Contractor's Bonds and Insurance and Affidavit, the Specifications, the Drawings including Supplemental Drawings and Change Orders issued after execution of the Contract for the Work described in Article No. 1 of this Agreement, all of which are incorporated in and made a part thereof of reference, and which shall be binding upon the Contractor and Owner.

The Specifications and Drawings for this Work include the following:

SPECIFICATION INDEX

SECTION

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ARTICLE No. 2 TIME OF COMPLETION:

The time for Substantial Completion (as further defined in Article 1 of the General Conditions) for the project shall be completed by August 15, 2014 and Final Completion for the project shall be 30 days thereafter. Plantings to be completed by November 20, 2014.

ARTICLE No. 3 LIQUIDATED DAMAGES:

It is mutually understood and agreed by and between the parties hereto that time is of the essence in the performance of this contract and that the Owner, the University of Kentucky, will sustain substantial monetary and other damages in the event of a failure or delay by the Contractor in the completion of the Work. It is further understood and agreed upon and made part of this Contract that the Work must be begun, performed, and completed without delay by the Contractor and if the Contractor fails to begin, perform without interruption, and complete said Work in due and proper time, the Contractor may be declared in default of this Agreement. If the

Work is not substantially complete within the time required in Article No. 2 of this Agreement, the Contractor shall pay to the Owner, as liquidated damages for delay and not as a penalty, the sum of \$489.00 for each and every day after the date of Substantial Completion until the date of actual Substantial Completion.

If the Work is not finally completed within the time required in the preceding Article No. 2 of this Agreement, the Contractor shall pay to the Owner, as liquidated damages for delay and not as a penalty, the sum of \$489.00 for each and every day after the date of Final Completion until the date of actual Final Completion. In no event shall liquidated damages for delay in Final Completion be due before the date required for Final Completion in Article No. 2 of this Agreement. This provision for liquidated damages is intended to compensate the Owner for delay only and shall not preclude the Owner from making claims for other damages.

If the Work is not commenced by the Contractor at the time specified in Article No. 2 of this Agreement, then the Contractor and its surety or sureties shall be liable for and pay to the Owner all damages sustained by reason of such failure or breach of contract and the Owner may immediately relet the Work.

ARTICLE No. 4 THE CONTRACT AMOUNT:

Subject to additions and deductions for Change Orders made in accordance with the Contract Documents, the Owner shall pay the Contractor as full consideration for the Contractor's satisfactory performance of the Contract obligations the sum of _____ Dollars (\$_____).

ARTICLE No. 5 SPECIAL NOTICE:

The Contractor hereby certifies that it is fully informed of the conditions relating to construction and labor under which the Work under this Agreement is to be performed, and agrees that it shall employ, methods and means in carrying out the Work so as not to interfere with or interrupt the Work of any other Contractor working on/or adjacent to the site for this Work.

IN WITNESS WHEREOF this Agreement is executed in two (2) counterparts, each one of which shall be deemed an original and adequate proof of this Agreement, on the date and year first herein before written.

WITNESS:

CONTRACTOR: _____
Company Name

BY: _____
Title: _____

Approved for Legality and Form

Recommended By:

APPROVED: _____

Dall Clark
Director of Capital Project Management Div.

UNIVERSITY OF KENTUCKY

By: _____
Eric Monday
Executive VP Finance & Administration



Steven L. Beshear
Governor

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

Larry Roberts
Secretary

Anthony Russell
Commissioner

April 10, 2014

Wendy Brown
U K
214 Peterson Service Bldg
Lexington KY 40506

Re: U K, 2393.0 - South Campus Parking Lot

Advertising Date as Shown on Notification: April 11, 2014

Dear Wendy Brown:

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

I am enclosing a copy of the current prevailing wage determination number CR 8-008, dated July 30, 2013 for FAYETTE County. This schedule of wages shall be attached to and made a part of the specifications for the work, printed on the bidding blanks, and made a part of the contract for the construction of the public works between the public authority and the successful bidder or bidders.

The determination number assigned to this project is based upon the advertising date contained in your notification. There may be modifications to this wage determination prior to the advertising date indicated. In addition, if the contract is not awarded within 90 days of this advertising date or if the advertising date is modified, a different set of prevailing rates of wages may be applicable. It will be the responsibility of the public authority to contact this office and verify the correct schedule of the prevailing rates of wages for use on the project. Your project number is as follows: 034-H-01227-13-8, Heavy/Highway

Sincerely,

Anthony Russell
Commissioner



**KENTUCKY LABOR CABINET
PREVAILING WAGE DETERMINATION
CURRENT REVISION
LOCALITY NO. 008**

Determination No. CR-8-008

Date of Determination: July 30, 2013

PROJECT NO. 034-B-01230-13-8

BLDG **HH**

This schedule of the prevailing rate of wages for Locality No. 008, which includes Fayette County, has been determined in accordance with the provisions of KRS 337.505 to 337.550. This determination shall be referred to as Prevailing Wage Determination No. CR-8-008.

Apprentices shall be permitted to work as such subject to Administrative Regulations 803 KAR 1:010. Copies of these regulations will be furnished upon request to any interested person.

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

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

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

BUILDING CONSTRUCTION

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

HIGHWAY CONSTRUCTION

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

HEAVY CONSTRUCTION

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



Anthony Russell, Commissioner
Department of Workplace Standards
Kentucky Labor Cabinet

| | | | |
|-------------------------------------|--|-----------------|---------|
| ASBESTOS/INSULATION WORKERS: | | BASE RATE | \$24.92 |
| | | FRINGE BENEFITS | 11.80 |

| | | | |
|----------------------|--|-----------------|---------|
| BOILERMAKERS: | | BASE RATE | \$21.75 |
| | | FRINGE BENEFITS | 11.76 |

| | | | |
|---------------------|--|-----------------|---------|
| BRICKLAYERS: | | BASE RATE | \$24.31 |
| Bricklayers: | | FRINGE BENEFITS | 11.40 |

| | | | |
|-------------------------|--|-----------------|---------|
| Firebrick & Refractory: | | BASE RATE | \$26.08 |
| | | FRINGE BENEFITS | 11.42 |

| | | | |
|------------------|--|-----------------|-------|
| Sawman & Layman: | | BASE RATE | 24.56 |
| | | FRINGE BENEFITS | 11.40 |

| | | | |
|-----------------------------|----------|-----------------|---------|
| CARPENTERS: | | BASE RATE | \$21.98 |
| Carpenters: | BUILDING | FRINGE BENEFITS | 12.70 |
| (Includes Drywall Finisher) | | | |

| | | | |
|----------------|----------|-----------------|---------|
| Piledrivermen: | BUILDING | BASE RATE | \$22.48 |
| | | FRINGE BENEFITS | 12.70 |

| | | | |
|-------------|-----------------|-----------------|---------|
| Carpenters: | HEAVY & HIGHWAY | BASE RATE | \$26.90 |
| | | FRINGE BENEFITS | 14.50 |

| | | | |
|-------------|-----------------|-----------------|---------|
| Piledriver: | HEAVY & HIGHWAY | BASE RATE | \$27.15 |
| | | FRINGE BENEFITS | 14.50 |

| | | | |
|---------|-----------------|-----------------|---------|
| Divers: | HEAVY & HIGHWAY | BASE RATE | \$40.73 |
| | | FRINGE BENEFITS | 14.50 |

| | | | |
|-----------------------|--|-----------|---------|
| CEMENT MASONS: | | BASE RATE | \$15.51 |
| | | FRINGE | .59 |

| | | | |
|----------------------|--|-----------------|---------|
| ELECTRICIANS: | | BASE RATE | \$29.48 |
| | | FRINGE BENEFITS | 14.36 |

When workmen are required to work from bosun chairs, trusses, stacks, tanks, scaffolds, catwalks, radio and T.V. towers, structural steel (open, unprotected, unfloored raw steel) and bridges or similar hazardous locations where workmen are subject to a direct fall: 50 feet to 75 feet – add 25% above the workman’s hourly rate, over 75 feet add 50% above workman’s hourly rate. No premium shall be paid on work performed using JLGs, bucket trucks or other similar elevated mechanized work platforms up to 75 feet above the surface upon which the platform sits.

| | | | |
|----------|---------------|-----------------|---------|
| LINEMAN: | HEAVY HIGHWAY | BASE RATE | \$31.86 |
| | | FRINGE BENEFITS | 11.63 |

| | | | |
|---------------------|---------------|-----------------|---------|
| EQUIPMENT OPERATOR: | HEAVY HIGHWAY | BASE RATE | \$28.48 |
| | | FRINGE BENEFITS | 10.94 |

| | | | |
|-------------|---------------|-----------------|---------|
| GROUNDSMAN: | HEAVY HIGHWAY | BASE RATE | \$18.87 |
| | | FRINGE BENEFITS | 9.03 |

ELEVATOR CONSTRUCTORS:

| | |
|-----------------|---------|
| BASE RATE | \$30.46 |
| FRINGE BENEFITS | 8.92 |

GLAZIERS:

| | |
|-----------------|---------|
| BASE RATE | \$24.15 |
| FRINGE BENEFITS | 11.45 |

IRONWORKERS:

| | |
|-----------------|---------|
| BASE RATE | \$26.47 |
| FRINGE BENEFITS | 19.56 |

LABORERS / BUILDING:

BUILDING GROUP 1: General laborers, asbestos abatement laborer, toxic waste removal laborer, water boys, tool room checker, carpenter tenders, (civil engineer helper, rodman, grade checker, excluding all field work performed by Engineering Firms), concrete pouring and curing, concrete forms stripping and wrecking, hand digging and backfilling of ditches, clearing of right of ways and building sites, wood sheeting and shoring, signalman for concrete bucket and general cleaning, and environmental laborer - nuclear, radiation, toxic and hazardous waste - Level D:

| | | |
|----------|-----------------|---------|
| BUILDING | *BASE RATE | \$20.41 |
| | FRINGE BENEFITS | 10.69 |

BUILDING GROUP 2: All air tool operators, air track drills, asphalt rakers, tampers, batchers plant and scale man, chain saw, concrete saw, cutter/burner, electric hand grinder, all electric bush and chipping hammers, flagmen, forklift operators, form setter (street or highway), metal form setters, heaters, mesh handlers on walkways, streets and roadways outside building, gunnite laborers, hand spiker, introflax burning rod, joint makers, mason tender, multi-trade tender, pipe layers, plaster tender, powderman helpers, power driven Georgia buggies, power posthole diggers, railroad laborers, sandblaster laborers, scow man and deck hand, signal man, sweeper and cleaner machines, vibrator operators, vibrator/tamper operated by hand or remote control, walk behind trenching machines, mortar mixer machines, water pumpmen, and environmental laborers - nuclear, radiation, toxic and hazardous waste - Level C:

| | | |
|----------|-----------------|---------|
| BUILDING | *BASE RATE | \$20.81 |
| | FRINGE BENEFITS | 10.69 |

BUILDING GROUP 3: Asphalt paver screwman, gunnite nozzleman and gunnite nozzle machine operator, sand blaster nozzleman, concrete or grout pumpman, plaster pumpman:

| | | |
|----------|-----------------|---------|
| BUILDING | *BASE RATE | \$21.01 |
| | FRINGE BENEFITS | 10.69 |

BUILDING GROUP 4: Powderman and blaster, and environmental laborer - nuclear, radiation, toxic and hazardous waste - Level B:

| | | |
|----------|-----------------|---------|
| BUILDING | *BASE RATE | \$21.11 |
| | FRINGE BENEFITS | 10.69 |

BUILDING GROUP 5: Caisson holes (6 ft. and over) pressure and free air including tools, and environmental laborer - nuclear, radiation, toxic and hazardous waste - Level A:

| | | |
|----------|-----------------|---------|
| BUILDING | *BASE RATE | \$21.61 |
| | FRINGE BENEFITS | 10.69 |

BUILDING GROUP 6: Tunnel man and tunnel sand miner, cofferdam (pressure and free air), sand hog or mucker (pressure or free air):

| | | |
|----------|-----------------|---------|
| BUILDING | *BASE RATE | \$21.91 |
| | FRINGE BENEFITS | 10.69 |

***Employees handling chemically treated materials which are harmful to the skin shall receive an additional \$.50 above base rate. Employees working on high work such as towers or smoke stacks, or any type of work fifty (50) feet above the ground or a solid floor shall receive \$1.00 above base rate. Employees working on boilers, kilns, melting tanks, furnaces, or when refractory is done using live fires, drying fires, heatups or any hot work shall receive \$2.00 above base rate.**

LABORERS / HEAVY & HIGHWAY:

HEAVY HIGHWAY GROUP 1: Aging and curing of concrete (any mode or method), asbestos abatement worker, asphalt plant laborers, asphalt laborers, batch truck dumpers, carpenter tenders, cement mason tenders, cleaning of machines, concrete laborers, demolition laborers, dredging laborers, drill helper, environmental laborer - nuclear, radiation, toxic and hazardous waste - Level D, flagmen, grade checkers, all hand digging and hand back filling, highway marker placers, landscaping laborers, mesh handlers and placers, puddler, railroad laborers, rip-rap and grouters, right of way laborers, sign, guard rail and fence installers (all types), signal men, sound barrier installer, storm and sanitary sewer laborers, swampers, truck spotters and dumpers, and wrecking of concrete forms, general cleanup:

| | | |
|-----------------|-----------------|---------|
| HEAVY & HIGHWAY | BASE RATE | \$21.35 |
| | FRINGE BENEFITS | 12.01 |

HEAVY HIGHWAY GROUP 2: Batter board men (sanitary and storm sewer), brickmason tenders, mortar mixer operator, scaffold builders, burner and welder, bushhammers, chain saw operator, concrete saw operators, deckhand scow man, dry cement handlers, environmental laborers - nuclear, radiation, toxic and hazardous waste - Level C, forklift operators for masonry, form setters, green concrete cutting, hand operated grouter and grinder machine operator, jack hammers, lead paint abatement, pavement breakers, paving joint machine, pipe layers-laser operators (non-metallic), plastic pipe fusion, power driven Georgia buggy or wheelbarrow, power post hole diggers, precast manhole setters, walk-behind tampers, walk-behind trenchers, sand blasters, concrete chippers, surface grinders, vibrator operators, wagon drillers:

| | | |
|-----------------|-----------------|---------|
| HEAVY & HIGHWAY | BASE RATE | \$21.60 |
| | FRINGE BENEFITS | 12.01 |

HEAVY HIGHWAY GROUP 3: Asphalt luteman and rakers, gunnite nozzleman, gunnite operators and mixers, grout pump operator, side rail setters, rail paved ditches, screw operators, tunnel laborers (free air), and water blasters:

| | | |
|-----------------|-----------------|---------|
| HEAVY & HIGHWAY | BASE RATE | \$21.65 |
| | FRINGE BENEFITS | 12.01 |

HEAVY HIGHWAY GROUP 4: Caisson workers (free air), cement finishers, environmental laborer - nuclear, radiation, toxic and hazardous waste - Levels A and B, miners and drillers (free air), tunnel blasters, and tunnel muckers (free air), directional and horizontal boring, air track driller (all types), powder man and blaster:

| | | |
|-----------------|-----------------|---------|
| HEAVY & HIGHWAY | BASE RATE | \$22.25 |
| | FRINGE BENEFITS | 12.01 |

MARBLE, TILE & TERRAZZO:

Finishers:

| | |
|-----------------|---------|
| BASE RATE | \$14.96 |
| FRINGE BENEFITS | 0.00 |

Setters:

| | |
|-----------------|---------|
| BASE RATE | \$21.89 |
| FRINGE BENEFITS | 0.00 |

MILLWRIGHTS:

| | |
|-----------------|---------|
| BASE RATE | \$24.18 |
| FRINGE BENEFITS | 15.67 |

OPERATING ENGINEERS / BUILDING:

NCCCO OR OECP CERTIFIED

BUILDING CLASS A-1: Crane, dragline, hoist (1 drum when used for stack or chimney construction or repair); hoisting engineer (2 or more drums), orangepeel bucket, overhead crane, piledriver, truck crane, tower crane, hydraulic crane:

| | | |
|----------|-----------------|---------|
| BUILDING | BASE RATE | \$27.90 |
| | FRINGE BENEFITS | 13.90 |

OPERATING ENGINEERS / BUILDING: CONTINUED

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

| | | |
|----------|-----------------|---------|
| BUILDING | *BASE RATE | \$26.84 |
| | FRINGE BENEFITS | 13.90 |

***Operators on cranes with boom one-hundred fifty feet (150') and over including jib, shall receive seventy-five cents (\$.75) above base rate. All cranes with piling leads will receive \$.50 above base rate regardless of boom length**

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

| | | |
|----------|-----------------|---------|
| BUILDING | BASE RATE | \$23.94 |
| | FRINGE BENEFITS | 13.90 |

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

| | | |
|----------|-----------------|---------|
| BUILDING | BASE RATE | \$23.13 |
| | FRINGE BENEFITS | 13.90 |

**OPERATING ENGINEERS / HEAVY HIGHWAY:
 NCCCO OR OECP CERTIFIED**

HEAVY HIGHWAY CLASS A-1: Cableway, carry deck crane, cherry picker, clamshell, crane, derrick, derrick boat, dragline, hoist engine (2 or more drums), hydraulic boom truck, hydrocrane, orangepeel bucket, overhead crane, piledriver, rough terrain crane, tower cranes (French, German & other types), truck crane:

| | | |
|---------------|-----------------|---------|
| HEAVY HIGHWAY | BASE RATE | \$29.07 |
| | FRINGE BENEFITS | 13.90 |

OPERATING ENGINEERS / HEAVY HIGHWAY: CONTINUED

HEAVY HIGHWAY CLASS A: A-frame winch truck, auto patrol, backfiller, batcher plant, bituminous paver, bituminous transfer machine, all types of boom cats, bulldozer, cableway, carry-all scoop, carry deck crane, central compressor plant operator, clamshell, concrete mixer (21 cu. ft. or over), concrete paver, truck-mounted concrete pump, core drills, crane, crusher plant, derrick, derrick boat, ditching and trenching machine, dragline, dredge operator, dredge engineer, earth movers, elevating grader and all types of loaders, grade-all, gurries, heavy equipment robotics operator/mechanic, high lift, hoe-type machine, hoist (two or more drums), hoisting engine (two or more drums), horizontal directional drill operator, hydraulic boom truck, hydrocrane, hyster, KeCal loader, Letourneau, Locomotive, mechanic, mechanically operated laser screed, mechanic welder, mucking machine, motor scraper, orangepeel bucket, piledriver, power blade, pumpcretee push doxer, rock spreader attached to equipment, all rotary drills, roller (bituminous), scarifier, scoopmobile, shovel, side boom, subgrader, tallboom, telescoping type forklift, tow or push boat, tower cranes (French, German and other types) tractor shovel and truck crane, tunnel mining machines including moles, shields, or similar types of tunnel mining equipment:

| | | |
|-----------------|-----------------|---------|
| HEAVY & HIGHWAY | BASE RATE | \$28.00 |
| | FRINGE BENEFITS | 13.90 |

Operators on cranes with booms one hundred fifty feet (150') and over including jib shall receive \$.50 above base rate.

HEAVY HIGHWAY CLASS B: All air compressors (over 900 cu. ft. per min.), bituminous mixer, boom type tamping machine, bull float, concrete mixer (under 21 cu. ft.), dredge engineer, electric vibrator compactor/self-propelled compactor, elevator (one drum or buck hoist), elevator (regardless of ownership when used to hoist building material), finish machine, firemen, flexplane, forklift (regardless of lift height), form grader, hoist (one drum), joint sealing machine, mechanic helper, outboard motor boat, power sweeper (riding type), roller (rock), ross carrier, skid mounted or trailer mounted concrete pumps, skid steer machine with all attachments, switchman or brakeman, throttle valve man, Tract air and road widening trencher, tractor (50 HP and over), truck crane oiler, tugger, welding machine, well points, and whirley oiler:

| | | |
|-----------------|-----------------|---------|
| HEAVY & HIGHWAY | BASE RATE | \$25.45 |
| | FRINGE BENEFITS | 13.90 |

HEAVY HIGHWAY CLASS B2: Greaser on grease facilities servicing heavy equipment, all off road material handling equipment, including articulating dump trucks:

| | | |
|-----------------|-----------------|---------|
| HEAVY & HIGHWAY | BASE RATE | \$25.85 |
| | FRINGE BENEFITS | 13.90 |

HEAVY HIGHWAY CLASS C: Bituminous distributor, burlap and curing machine, caisson drill and core drill helper (track or skid mounted), cement gun, concrete saw, conveyor, deckhand oiler, grout pump, hydraulic post driver, hydro seeder, mud jack, oiler, paving joint machine, power form handling equipment, pump, roller (earth), steermen, tamping machine, tractors (under 50 H.P.) and vibrator:

| | | |
|-----------------|-----------------|---------|
| HEAVY & HIGHWAY | BASE RATE | \$25.17 |
| | FRINGE BENEFITS | 13.90 |

****Operators on cranes with booms one hundred fifty feet (150') and over including jib shall receive \$.50 above base rate.**

PAINTERS:

Brush, roller & paperhanger:

| | | |
|--|-----------------|---------|
| | BASE RATE | \$17.87 |
| | FRINGE BENEFITS | 9.10 |

Spray, sandblast, waterblast (4000+ PSI), fireproofing & lead abatement:

| | | |
|--|-----------------|---------|
| | BASE RATE | \$18.37 |
| | FRINGE BENEFITS | 9.10 |

PLASTERERS:

| | | |
|--|-----------------|---------|
| | BASE RATE | \$20.65 |
| | FRINGE BENEFITS | 5.85 |

PLUMBERS & PIPEFITTERS:

| | |
|-----------------|---------|
| BASE RATE | \$30.00 |
| FRINGE BENEFITS | 15.56 |

ROOFERS: (Excluding Metal Roofs)

| | |
|-----------------|---------|
| BASE RATE | \$16.65 |
| FRINGE BENEFITS | 4.95 |

SHEETMETAL WORKERS: (Including Metal Roofs)

| | |
|-----------------|---------|
| BASE RATE | \$28.00 |
| FRINGE BENEFITS | 13.59 |

SPRINKLER FITTERS:

| | |
|-----------------|---------|
| BASE RATE | \$30.14 |
| FRINGE BENEFITS | 17.37 |

TRUCK DRIVERS / BUILDING:

Truck Helper and Warehouseman:

BUILDING

| | |
|------------------|---------|
| BASE RATE | \$19.05 |
| *FRINGE BENEFITS | 11.08 |

Driver - 3 tons and under, Greaser, Tire Changer and Mechanic Helper:

BUILDING

| | |
|------------------|---------|
| BASE RATE | \$19.17 |
| *FRINGE BENEFITS | 11.08 |

Driver - over 3 tons, Drivers, Semi-Trailer or Pole Trailer; Dump Trucks, Tandem Axle; Farm Tractor when used to pull building material or equipment:

BUILDING

| | |
|------------------|---------|
| BASE RATE | \$19.28 |
| *FRINGE BENEFITS | 11.08 |

Drivers, Concrete Mixer Trucks (all types, hauling on job sites only); Truck Mechanics:

BUILDING

| | |
|------------------|---------|
| BASE RATE | \$19.35 |
| *FRINGE BENEFITS | 11.08 |

Drivers, Euclid and other Heavy Earth Moving Equipment and Low Boy, Winch Truck and A-Frame Truck and Monorail Truck when used to transport building materials, Forklift Truck when used inside warehouse or storage area:

BUILDING

| | |
|------------------|---------|
| BASE RATE | \$19.45 |
| *FRINGE BENEFITS | 11.08 |

BUILDING TRUCK DRIVERS: Drivers working or hauling to or from any hazardous or toxic site will add \$4.00 to base rate. *TRUCK DRIVER FRINGE BENEFITS apply to employees who have been employed a minimum or twenty (20) calendar days within any ninety (90) consecutive day period of that employer.

TRUCK DRIVERS / HEAVY HIGHWAY:

Mobile batch truck helper:

HEAVY & HIGHWAY

| | |
|-----------------|---------|
| BASE RATE | \$16.57 |
| FRINGE BENEFITS | 7.34 |

Greaser, tire changer and mechanic helper:

HEAVY & HIGHWAY

| | |
|-----------------|---------|
| BASE RATE | \$16.68 |
| FRINGE BENEFITS | 7.34 |

Single axle dump, flatbed, semi-trailer or pole trailer when used to pull building materials and equipment, tandem axle dump, distributor and truck mechanic:

HEAVY & HIGHWAY

| | |
|-----------------|---------|
| BASE RATE | \$16.86 |
| FRINGE BENEFITS | 7.34 |

TRUCK DRIVERS / HEAVY HIGHWAY: CONTINUED

Euclid and other heavy earthmoving equipment and lowboy, articulator cat, 5-axle vehicle, winch and A-frame when used in transporting materials, ross carrier, forklift when used to transport building materials, and pavement breaker:

| | | |
|-----------------|-----------------|---------|
| HEAVY & HIGHWAY | BASE RATE | \$16.96 |
| | FRINGE BENEFITS | 7.34 |

END OF DOCUMENT
CR-8-008
JULY 30, 2013

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**CONTRACT 2393.0
SUPPLEMENTAL SPECIFICATIONS
2393.0 SOUTH CAMPUS PARKING LOT
CAPITAL PROJECT
MANAGEMENT DIVISION
UNIVERSITY OF KENTUCKY
LEXINGTON, KENTUCKY**

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END

SECTION 01010
SUMMARY OF WORK

PART 1 GENERAL

1.01 SCOPE OF WORK COVERED BY THE CONTRACT

- A. These Specifications and the accompanying Drawings describe the work to be performed and materials to be furnished for the construction of 2393.0 South Campus Parking Lot, Capital Project Management Division, University of Kentucky, Lexington, Kentucky.
- B. The Work is located at Lexington, Kentucky, on the University of Kentucky campus along and parallel to Alumni Drive toward the Good Barn between Nicholasville Road and University Drive.
- C. Major work items in this Contract include:
 - 1. Earthwork for detention basins.
 - 2. Parking lot with underground detention basin.
 - 3. Furnishing and installation of new storm sewer manholes.
 - 5. Furnishing and installation of 30-inch and 18-inch storm sewers and accessories.
 - 6. Landscaping.
 - 7. Removal of existing storm sewers and accessories, all sizes.
 - 8. Removal of overhead electrical lines, poles, parking lot lighting, and accessories.

1.02 WORK SEQUENCE

- A. Work will be concurrent with the construction of the 2336.0 UK/FEMA Flood Mitigation Project.

PART 2 MATERIALS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01020

ALLOWANCES

PART 1 GENERAL

1.01 QUANTITY ALLOWANCES

- A. Allowances are based on unit prices and the quantities listed below. Allowances shall include all materials, labor, equipment, time, etc., required to perform the work. If the allowances are exceeded, additional compensation will be due based on the quantities used and unit prices. If the quantities included in the allowance are not used, the contract amount will be reduced based on quantities not used and unit prices.
- B. The CONTRACTOR shall include in the base bid the removal of 1,000 cubic yards of unsuitable soil material, including disposal offsite and backfill with compacted, crushed stone. The actual quantities used will be verified and any addition to or deduction from the contract amount will be based on quantities actually used and unit prices.
- C. The CONTRACTOR shall include in the base bid 1,500 square yards of Type III geotextile fabric. Allowance includes providing materials and installation. The actual quantities used will be verified and the addition to or deduction from the contract amount will be based on quantities actually used and unit prices.
- D. The CONTRACTOR shall include in the Base Bid \$50,000.00 for the construction of the bus stop area including sidewalk, ramps, and other features.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SANITARY FACILITIES

- A. The CONTRACTOR shall construct and maintain, in a sanitary condition, sanitary facilities for the CONTRACTOR'S employees and also employees of the Subcontractors. The CONTRACTOR shall, at completion of the Contract Work, properly dispose of these sanitary facilities.

1.02 UTILITIES

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

1.03 MAINTENANCE OF SERVICE IN EXISTING UTILITIES

- A. Where the existing utilities must be disturbed during construction under this Contract, their operation and function shall be maintained by the CONTRACTOR to such a degree that service to customers will be interrupted for minimum time periods only. Such disturbances and any maintenance use of these lines shall constitute no cost to the OWNER. Existing stormwater facilities to remain in service as required to prevent property damage and conform with BMP. **The OWNER shall be notified of interruptions in sufficient time to prepare for them and shall agree to the hour, date, and duration of them before they are undertaken.**
- B. Should shutdowns in service be in excess of the time of duration agreed upon, and such excessive shutdown time be due to the CONTRACTOR's negligence, faulty Work and/or inability to perform, then and in that event, the CONTRACTOR shall be held liable to the OWNER for any and all damages that may accrue to the OWNER, by reason of such excessive shutdown periods.
- C. Digging through services with trenching machines will not be permitted. Upon damage to utility services, such services shall be repaired immediately and tested to the satisfaction of the ENGINEER. The CONTRACTOR shall notify all utility users of impending interruption of service and shall be responsible for all damage resulting from same. Payment for necessary disconnection and reconnection of utility services shall be included as a part of the CONTRACTOR's bid and no extra compensation will be made for same.
- D. The CONTRACTOR shall at all times maintain on hand an adequate supply of repair materials and tools with which to make repair to damaged water, gas, electric, and sewer lines. Should the CONTRACTOR inadvertently damage

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existing utilities, he shall make immediate repair thereto and in no event shall he leave the site before such repair has been made and proven to be successful.

- E. As far as possible, the locations and sizes of existing mains are indicated on the Drawings; however, exact locations, pipe materials and sizes cannot be guaranteed. It shall be the responsibility of the CONTRACTOR to locate and uncover existing lines, to which new mains are to be connected, and provide all connecting fittings of the correct size and type for each connection. The cost of the above shall be considered as incidental to the work without extra payment.

1.04 PROPERTY PROTECTION

- A. Care is to be exercised by the CONTRACTOR in all phases of construction, to prevent damage and/or injury to the OWNER's and/or other property.
- B. The CONTRACTOR shall avoid unnecessary injury to trees and shall remove only those **authorized** to be removed by written consent of the OWNER. Fences, gates, and terrain damaged or disarranged by the CONTRACTOR's forces shall be immediately restored in their original condition or better.

1.05 CONSTRUCTION WARNING SIGNS

- A. The CONTRACTOR shall provide construction warning signs for each location where he is working in the State highway right-of-way or in City streets. He will further provide flagmen as required and shall abide by all Kentucky Transportation Cabinet, Department of Highway, LFUCG, and University of Kentucky Traffic Control safety rules, including size, type and placement of construction signs. All signs shall be of professional quality.

1.06 ACCESS ROADWAYS

- A. The CONTRACTOR shall construct all access roadways needed during construction, and the planned access roadways for the completed project. The CONTRACTOR shall maintain access roadways continuously during the construction period.
- B. The CONTRACTOR shall maintain all existing roadways within the project site which are used for any purpose by his construction operations. The degree and frequency of maintenance shall be adequate to keep existing roadways in a condition at least equal to their condition prior to construction. Road maintenance shall include dust control and grading as necessary.

1.07 RESPONSIBILITY FOR TRENCH SETTLEMENT

- A. The CONTRACTOR shall be responsible for any settlement caused by the construction that occurs within 1 year after the final acceptance of this Contract by the OWNER. Repair of any damage caused by settlement shall meet the approval of the OWNER.

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1.08 WASTE DISPOSAL

- A. The CONTRACTOR shall dispose of waste, including any hazardous waste, off-site in accordance with all applicable laws and regulations.

1.09 CONTRACTOR'S TRAILERS AND MATERIAL STORAGE

- A. The location of the CONTRACTOR'S and Subcontractors' office and work trailers and parking areas on the project site shall be subject to the OWNER's approval.
- B. The location of the CONTRACTOR'S and Subcontractors' material storage yards on the project site shall be subject to the OWNER's approval.

1.10 CONSTRUCTION IDENTIFICATION SIGNS

- A. The CONTRACTOR shall furnish and erect project identification signs. See Special Conditions.
- B. The CONTRACTOR shall obtain the OWNER'S permission before erecting any construction signs not specifically required by the Contract.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 02050

SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals required to perform all demolition and removal work as shown on the Drawings and as specified herein. All work shall be carried out in accordance with the Department of Labor regulations and per the following:
 - 1. Occupational and Health Hazards (29 CFR - Part 1910).
 - 2. Safety and Health Regulations for Construction (29 CFR - Part 1518).
 - 3. Any applicable local ordinances or codes.
- B. All materials, piping, fittings, valves, equipment, and other items resulting from demolition shall be removed from the site and disposed of in a legal manner, unless otherwise noted on the Drawings. CONTRACTOR shall deliver items to be retained by the OWNER to OWNER'S storage location located on the campus property.
- C. All removal work shall be carried to the limits necessary for construction of the new work, and as specified herein.

1.02 RELATED WORK

- A. Removal of existing overhead electric lines and parking lot lighting shall comply with local, state, and national regulations and requirements of local utility.

1.03 SUBMITTALS

- A. Obtain all demolition permits required, including any necessary transportation permits, and submit copies of these to the ENGINEER.

1.04 PROTECTION

- A. Erect barriers, fences, guardrails, enclosures, chutes, and shoring to protect personnel, structures, and utilities remaining intact.
- B. Protection of Existing Work
 - 1. Existing work to remain shall be protected from damage. Work damaged by the CONTRACTOR shall be repaired to match existing work at no additional cost to the OWNER, as directed by the ENGINEER. Provide temporary support and shoring as required for existing materials until new work is installed.

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C. Protection of Utility Lines

1. Existing utility lines that are indicated or the locations of which are made known to the CONTRACTOR prior to demolition work shall be protected from damage. Damaged utility lines shall be repaired as directed by the ENGINEER at no additional cost to the OWNER.

D. Protection of Personnel

1. Where the safety of personnel is endangered in the area of removal work, barricades for traffic shall be used and advance notice shall be given to the ENGINEER prior to beginning any such work.

- E. Wherever piping is removed for disposition, adjacent pipe and headers that are to remain in service shall be blanked off or plugged and then anchored in an approved manner.

F. Use of Saw Cuts and Pneumatic Hammers

1. Saw cuts shall be used wherever applicable. Pneumatic hammers shall only be used with the approval of the ENGINEER.

G. Use of Explosives

1. Use of explosives will not be allowed for purposes of demolition.

- H. Carry out all demolition work in accordance with the demolition plan and applicable permit requirements.

PART 2 PRODUCTS

None this Section.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify that the use of the facilities and related equipment to be demolished has been discontinued.
- B. Do not commence work until conditions are acceptable to the ENGINEER.

3.02 PREPARATION

- A. Perform demolition in accordance with the accepted demolition plan, and applicable permit requirements.

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B. Existing Facilities to be Removed (as applicable):

1. Piping: Remove existing piping, valves, meters, fittings, and supports as indicated on the Drawings and terminate with permanent, non-projecting plugs or seals.
2. Slabs: Remove concrete pads and walks and subsurface materials to limits and depths indicated on Drawings.

3.03 DISPOSAL

A. Remove demolition debris immediately from site, according to the Special Conditions.

B. Clean up the site in accordance with the Special Conditions.

1. Debris and Rubbish Control: Debris and rubbish shall be removed and transported in a manner that will prevent spillage on streets or adjacent areas.
2. Regulations: Comply with Federal, State and local regulations regarding hauling and disposal.

END OF SECTION

SECTION 02110
SITE CLEARING AND GRUBBING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnish all labor and equipment required and perform all clearing, grubbing and stripping of topsoil complete as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Earth and rock work are included in Section 02200.

1.03 SUBMITTALS

- A. None required for this Section.

PART 2 PRODUCTS

None in this Section.

PART 3 EXECUTION

3.01 GENERAL

- A. The proposed paved areas, areas designated for ditches and channel changes, etc., (except any portions thereof that may be reserved) shall be cleared of all trees, timber, brush, stumps, rubbish and other debris. All this material, unless otherwise specified, shall be removed and disposed of away from the site.
- B. Open burning is not allowed.
- C. Where clearing is to be done, stumps shall be grubbed for all embankments, where the profile indicates excavation, in all areas designated for the construction of other facilities. In areas to be grubbed, all stumps and roots must be removed.
- D. No debris will be allowed to be left under or in the embankments.
- E. In felling trees near structures and wire lines, necessary precaution must be exercised in order to prevent damage to wire lines, structures, the facilities of others.

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3.02 TREES

- A. Trees (3" caliper and larger) shall not be disturbed by construction without written permission from the OWNER, except in those areas to be cleared. Trees disturbed by construction outside of clearing limits, and not authorized for removal by the OWNER, shall be replaced by the CONTRACTOR with same size and type at no additional cost to the OWNER.

END OF SECTION

SECTION 02140

DEWATERING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Furnish all labor and equipment required to dewater all excavations. Dewatering of all excavations shall be the responsibility of the CONTRACTOR, and no additional compensation will be allowed for same unless specifically included as a bid item.
- B. Leaking pipes and structures are to be anticipated on this project. For this reason, no additional payment will be made for dewatering associated with leakage from any existing facility.

1.02 RELATED WORK

- A. Earth and rock work is included in Section 02200.
- B. Crushed stone and DGA are included in Section 02235.
- C. Erosion and sedimentation control is included in Section 02370.

1.03 SUBMITTALS

None.

PART 2 PRODUCTS

None in this Section.

PART 3 EXECUTION

1.01 GENERAL

- A. Dewatering equipment shall be of adequate size and quantity to assure maintaining proper conditions for installing pipe, concrete, backfill or other material or structure in the excavation. Dewatering shall include proper removal of any and all liquid, regardless of source, from the excavation and the use of all practical means available to prevent surface runoff from entering any excavation.

END OF SECTION

SECTION 02200
EARTH AND ROCK WORK

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Extent of earthwork is indicated on the Drawings.
 - 1. Preparation of subgrade for walks and pavements is included as part of this work.
 - 2. Engineered fill course for support of pavements, walks, and earthen berms is included as part of this work.
 - 3. Backfilling of walls and miscellaneous site elements is included as part of this work.
- B. Excavation for Mechanical/Electrical Work
 - 1. Excavation and backfill required in conjunction with underground mechanical and electrical utilities, and buried mechanical and electrical appurtenances is included as work of this Section.

1.02 RELATED WORK

- A. Site Clearing and Grubbing is included in Section 02050.
- B. Dewatering is included in Section 02140.
- C. Crushed Stone and DGA is included in Section 02235.
- D. Geotextiles are included in Section 02270.
- E. Erosion Prevention and Sediment Control is included in Section 02370.
- F. Landscaping is included in Section 02900.
- G. Sodding and Seeding is included in Section 02930.
- H. Storm Sewer is included in Section 02720.
- I. Storm Sewer Under Ground Detention Systems are included in Section 02721.

1.03 QUALITY ASSURANCE

- A. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

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- B. Employ, at CONTRACTOR'S expense, testing laboratory acceptable to the OWNER to perform soil testing and inspection service for quality control testing during earthwork operations.

1.04 SUBMITTALS

- A. Submit following reports directly to the ENGINEER from the testing services, with copy to CONTRACTOR:
 - 1. Test reports on borrow material.
 - 2. Verification of pavement and structure subgrade.
 - 3. Field density test reports.
 - 4. One optimum moisture-maximum density curve for each type of soil encountered.

1.05 JOB CONDITIONS

A. Site Information

- 1. Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soundings. It is expressly understood that OWNER will not be responsible for interpretation or conclusions drawn therefrom by CONTRACTOR. Data are made available for convenience of CONTRACTOR.
- 2. Additional test borings and other exploratory operations may be made by CONTRACTOR at no cost to OWNER.

B. Existing Utilities

Prior to commencement of work, the CONTRACTOR shall locate existing underground utilities in areas of the work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.

C. Use of Explosives

- 1. See Article 13 of the Special Conditions.

D. Protection of Persons and Property

- 1. See Article 14 of the Special Conditions.
- 2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

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PART 2 PRODUCTS

2.01 SOIL MATERIALS

A. Definitions

1. Satisfactory soil materials are defined as those complying with ASTM D2487-85 soil classification groups GW, GP, GM, SM, SW, SP, GC, SC, ML, and CL.
2. Unsatisfactory soil materials are defined as those complying with ASTM D2487-85 soil classification groups MH, CH, OL, OH and PT.
3. Subbase material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, natural or crushed sand.
4. Drainage fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a 1-1/2 inch sieve and not more than 5 percent passing a No. 4 sieve.
5. Backfill and fill materials: Satisfactory soil materials free of debris, waste, frozen materials, vegetable, and other deleterious matter.
6. Engineered fill: Refer to subbase course material.

PART 3 EXECUTION

3.01 STRIPPING AND TOPSOILING

- A. Before excavation and grading is commenced for work described hereinafter (except pipelines and manholes), the material meeting the topsoil specification in Section 02900 of these Specifications shall be removed from the areas affected and stockpiled.
- B. When final grading is accomplished, particularly around structures, the topsoil shall be spread evenly over the excavated area. Rough grading above excavated areas shall have been carried approximately 6 inches below finished grade (except solid rock, where it shall be carried 12 inches below finished grade) and brought back up to grade with topsoil as set out herein.

3.02 EXCAVATION

- A. Excavation includes excavation to subgrade elevations indicated including excavation of earth, rock, bricks, wood, cinders, and other debris. All excavation of materials in the lump sum portion of the work will be unclassified and no additional payment will be made regardless of type material encountered.
- B. Differing Site Conditions
 1. Refer to the General Conditions of the Contract.

C. Unauthorized excavation consists of removal of materials beyond subgrade elevations or dimensions without specific direction of ENGINEER. Unauthorized excavation, as well as remedial work directed by ENGINEER, shall be at CONTRACTOR's expense.

1. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to the ENGINEER.
2. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification.

D. Additional Excavation

1. When excavation has reached required subgrade elevations, notify the ENGINEER who will make an inspection of conditions.
 - a. If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed in writing by the ENGINEER.
 - b. Removal of unsuitable material and its replacement as directed will be paid on basis of Contract conditions relative to changes in work. See Section 01020—Allowances.

E. Stability of Excavations

1. Slope sides of excavations to comply with codes and ordinances having jurisdiction.
2. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

F. Shoring and Bracing

1. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross-braces, in good serviceable condition.
2. Establish requirements for trench shoring and bracing to comply with codes and authorities having jurisdiction.
3. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
4. Provide permanent steel sheet piling or pressure creosoted timber sheet piling wherever subsequent removal of sheet piling might permit lateral

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movement of soil under adjacent structures. Cut off tops as required and leave permanently in place. In the event the OWNER directs the CONTRACTOR to leave shoring materials in place, the OWNER will reimburse the CONTRACTOR for the reasonable cost of leaving such materials in place.

G. Dewatering

1. Refer to Section 02140 for dewatering requirements.

H. Material Storage

1. Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage.
2. Dispose of excess soil material and waste materials as herein specified.

I. Excavation for Structures

1. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
2. In excavating for footings and foundations, take care not to disturb bottom of excavation. All loose material shall be removed from the excavation just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.

J. Excavation for Pavements

1. Cut surface under pavements to comply with cross-sections, elevations, and grades as shown.

K. Trench Excavation

1. The CONTRACTOR shall include in his lump sum bid all trenching and backfill necessary for installation of all pipelines as planned and specified. Trenching shall include clearing and grubbing of all trash, weeds, briars, trees and stumps encountered in the trenching. The CONTRACTOR shall dispose of such material at no extra cost to the OWNER. Shrubs shall be removed, maintained and replanted in the same or adjacent location. Trenching also includes such items as street, road, sidewalk, pipe, and small drains; and cutting, moving or repairing other surface structures regardless of whether shown on the Drawings.
2. All existing facilities shall be protected from danger or damage while pipelines are being constructed and backfilled, and from damage due to settlement of the backfill.

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3. In the event any existing structure is damaged, repair and restoration shall be made at once and backfill shall not be replaced until this is done. Restoration and repair shall be such that the damaged structure is equal to or better than its original condition and can serve its purpose as completely as before. All such restoration and repair shall be done without extra cost to the OWNER.
4. Trenches must be dug to lines and grades shown on the Drawings. Hand trenching may be required in areas where machine trenching would result in undue damage to existing structures and facilities.
5. Excavation shall be open trenches, except where otherwise shown on the Drawings, for tunneling, boring, or jacking under structures, railroad, sidewalks and roads.
6. Sheeting and shoring of trenches shall be provided at the expense of the CONTRACTOR where necessary to protect life, property and the new or existing structures from damage or to maintain maximum permissible trench widths at top of pipe. All necessary materials, including, but not limited to, sheeting, sheet piling, trench jacks, braces, shores and stringers, shall be used to hold trench walls. Sheeting and shoring may be withdrawn as the trenches are being backfilled, after backfill has been tamped over top of the pipe at least 18 inches. If removal before backfill is completed to surface endangers adjacent structures, such as buildings, pipelines, street paving, and sidewalks, then the sheeting and shoring shall be left in place until such danger has passed, and then pulled if practical. Voids caused by sheeting withdrawal shall be backfilled and tamped. If not withdrawn, sheeting shall be cut off at least 18 inches below final surface grade, so there is no obstruction at the ground level. In the event the OWNER directs the CONTRACTOR to leave shoring materials in place, the OWNER will reimburse the CONTRACTOR for the reasonable cost of leaving such materials in place.
7. Where subgrade of trench has insufficient stability to support the pipeline and hold it to its original grade, the ENGINEER may order stabilization by various means. Exclusive of dewatering normally required for construction, and instability caused by neglect of the CONTRACTOR, the necessary stabilization shall be paid for at unit prices established in the Contract. In the event no particular bid price is applicable, then the payment for stabilization will be negotiated. See Section 01020— Allowances.
8. The location of the pipelines and their appurtenances as shown are those intended for the final construction. However, conditions may present themselves before construction on any line is started that would indicate desirable changes in location. The OWNER reserves the right to make reasonable changes in line and structure locations without extra cost, except as may be determined by extra units of materials and construction actually involved. The OWNER is under no obligation to locate pipelines, so they may be excavated by machine.

9. Tunneling plates may be used at the CONTRACTOR'S option as an alternate to open-cut trenching, at no extra cost to the OWNER. The annular space between plates and excavation shall be either permanently placed pea gravel or sand, pumped grout (3 parts sand and 1 part Portland cement by volume) or other suitably installed material approved by the ENGINEER. Backfilling shall be kept close to the heading and completed after each day's work. Where grout is used for backfill, injection holes with threaded plugs shall be provided in liner plates at various levels and in sufficient number to effectively grout the void around the tunnel. A minimum of 3 grout holes shall be provided in each 8 feet of tunnel length. Grout shall be injected in the lower holes first, proceeding upward as the void is filled. Plugs shall be installed after each hole is filled and grout stops shall be provided behind plates as necessary to ensure complete filling of the void. In tunneling under buildings, the CONTRACTOR will be responsible for all damage resulting from his operations and methods of excavation and backfilling. Boring may also be used at the CONTRACTOR'S option as an alternate to tunneling or open-cut trenching, at no extra cost to the OWNER.
10. Dig trenches to the uniform width required for the particular item to be installed, sufficiently wide to provide ample working room. Provide 6 inch to 9 inch clearance on both sides of pipe or conduit.
 - a. Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.
 - b. Where rock is encountered, carry excavation 6 inches below required elevation and backfill with a 6-inch layer of crushed stone or gravel prior to installation of pipe.
 - c. For pipes or conduit 4 inches or smaller in nominal size, excavate to subbase depth indicated or, if not otherwise indicated, to 4 inches below bottom of work to be supported.
 - d. For pipes or conduit 6 inches or larger in nominal size, tanks, and other mechanical/electrical work indicated to receive subbase, excavate to subbase depth indicated or, if not otherwise indicated, to 6 inches below bottom of work to be supported.
 - e. Except as otherwise indicated, excavation for exterior water-bearing piping (water, steam, condensate, drainage) so top of piping is no less than 2 feet 6 inches below finish grade.
 - f. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.

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- g. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.
- h. Do not backfill trenches until tests and inspections have been made and backfilling authorized by the ENGINEER. Use care in backfilling to avoid damage or displacement of pipe systems.
- i. For piping or conduit less than 2 feet 6 inches below surface of roadways, furnish and install steel casing pipe, minimum wall thickness of 1/4-inch, of sufficient diameter to carry the pipe or conduit to at least 2 feet beyond outside edge of pavement.

L. Cold Weather Protection

- 1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees Fahrenheit (1 degree Celsius).

3.03 COMPACTION

A. General

- 1. Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below:
 - a. Percentage of maximum density requirements: Compact soil to not less than the following percentages of maximum density for soils which exhibit a well-defined moisture density relationship (cohesive soils) determined in accordance with ASTM D698; and not less than the following percentages of relative density, determined in accordance with ASTM D4253 and D4254, for soils which will not exhibit a well-defined moisture-density relationship (cohesionless soils).
 - b. Structures and pavements: Compact top 12 inches of subgrade and each layer of backfill or fill material at 95 percent standard proctor density at +2 percent to -2 percent optimum moisture content.
 - c. Lawn or unpaved areas: Compact top 6 inches of subgrade and each layer of backfill or fill material at 90 percent standard proctor density.
 - d. Walkways: Compact top 6 inches of subgrade and each layer of backfill or fill material at 95 percent standard proctor density at +2 percent to -2 percent optimum moisture content.

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B. Moisture Control

1. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface or subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
3. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

3.04 BACKFILL AND FILL

A. General

1. Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below. Backfill material shall be no larger than the specified depth of the layer to be placed and/or compacted.
 - a. In excavations, use satisfactory excavated or borrow material.
 - b. Under grassed areas, use satisfactory excavated or borrow material.
 - c. Under walks and pavements, use satisfactory excavated material, or as shown on the Drawings.
 - d. Under steps, use subbase material.

B. Backfill excavations as promptly as work permits, but not until completion of the following:

1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
2. Inspection, testing, approval, and recording locations of underground utilities.
3. Removal of concrete formwork.
4. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.

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5. Removal of trash and debris.
6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.

C. Ground Surface Preparation

1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.
2. When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture condition to optimum moisture content, and compact to required depth and percentage of maximum density.

D. Placement and Compaction

1. Place backfill and fill 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. Crushed stone shall be installed in accordance with Section 02235.
2. Before compaction, add moisture or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
3. Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

E. Backfilling Trenches

1. Refer to Section 02720 for trench backfill requirements.

3.05 GRADING

A. General

1. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

B. Grading Outside Structure Lines

1. All materials used for backfill around structures shall be of a quality acceptable to the ENGINEER and shall be free from large or frozen lumps, wood and other extraneous material. All spaces excavated and not occupied by footings, foundations, walls or other permanent work shall be refilled with earth up to the surface of the surrounding ground, unless otherwise specified, with sufficient allowance for settlement.
2. In making the fills and terraces around the structures, the fill shall be placed in layers not exceeding 12 inches in depth and shall be kept smooth as the work progresses. Each layer of the fill shall be rolled with an approved type roller and/or be compacted. When it is not practicable to compact sections of the fill immediately adjacent to buildings or structures by rolling, then such sections shall be thoroughly compacted by means of mechanical tamping or hand tamping as may be required by the conditions encountered.
3. All fills shall be placed so as to load structures symmetrically.
4. As set out hereinbefore, rough grading shall be held below finished grade and then the topsoil which has been stockpiled shall be evenly spread over the surface. The grading shall be brought to the levels shown on the Drawings or to the elevations established by the ENGINEER. Final dressing shall be accomplished by hand work or machine work, or a combination of these methods as may be necessary to produce a uniform and smooth finish to all parts of the regrade. The surface shall be free from clods greater than 2 inches in diameter. Excavated rock may be placed in the fills, but it shall be thoroughly covered. Rock placed in fills shall not be closer than 12 inches from finished grade.
5. Grade areas to drain away from structures and to prevent ponding.
 - a. Finish surfaces to be free from irregular surface changes, and as follows:
 - (1) Lawn or unpaved areas: Finish areas to receive topsoil to within not more than 0.10 feet above or below required subgrade elevations.
 - (2) Walks: Shape surface of areas under walks to line, grade, and cross-section, with finish surface not more than 0.0 inch above or 1.0 inch below required subgrade elevation.
 - (3) Pavements: Shape surface of areas under pavement to line, grade, and cross-section, with finish surface not more than 0.0 inch above or 1 inch below required subgrade elevation.

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C. Compaction

1. After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or standard proctor density for each area classification.

3.06 PAVEMENT SUBBASE COURSE

A. General

1. Subbase course consists of placing subbase material, in layers of specified thickness, over subgrade surface to support a pavement base course.

B. Grade Control

1. During construction, maintain lines and grades including crown and cross-slope of subbase course.

C. Shoulders

1. Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each subbase course layer. Compact and roll at least a 12 inch width of shoulder simultaneously with compacting and rolling of each layer of subbase course.

D. Placing

1. Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.
2. When a compacted subbase course is shown to be 6 inches thick or less, place material in a single layer. When shown to be more than 6 inches thick, place material in equal layers, except no single layer more than 6 inches or less than 3 inches in thickness when compacted.

3.07 FIELD QUALITY CONTROL

A. Quality Control Testing During Construction

1. Allow testing service to inspect and report to the ENGINEER on findings and approve subgrades and fill layers before further construction work is performed. A minimum of 3 tests per layer shall be performed on compacted soil fill. The placement of rock for the purpose of structure fill shall be observed and approved by testing service.

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2. Perform field density tests in accordance with ASTM D1556 (sand cone method), ASTM D2167-84 (rubber balloon method), or ASTM D2992-87 (nuclear density method), as applicable.
 3. Footing subgrade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, when acceptable to ENGINEER.
 4. Paved areas and building slab subgrade: Make at least one field density test of subgrade for every 2,000 square feet of paved area or building slab, but in no case less than 3 tests. In each compacted fill layer, make one field density test for every 2,000 square feet of overlaying building slab or paved area, but in no case less than three tests.
 5. Foundation wall backfill: Take at least 2 field density tests, at locations and elevations as directed.
- B. If in opinion of the ENGINEER, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional cost to the OWNER.

3.08 MAINTENANCE

A. Protection of Graded Areas

1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

B. Reconditioning Compacted Areas

1. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.

C. Settling

1. Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

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3.09 DISPOSAL OF EXCESS NON-ORGANIC SOIL AND ROCK

A. General

1. All excess nonorganic soil and rock be disposed offsite.

END OF SECTION

SECTION 02235

CRUSHED STONE AND DENSE GRADED AGGREGATE (DGA)

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish and install crushed stone aggregates and DGA as indicated on the Drawings and/or required in the Specifications for such uses as surfaces and/or bases of roads, parking areas and walkways; temporary and permanent traffic bound surfacing over trenches; permanent traffic bound roadway surface maintenance; replacement of unsuitable material; and other miscellaneous applications required in the work.
- B. Various sizes, types and quality of crushed stone aggregates are specified in this Section depending on applicability which may be specified in detail in other sections of these Specifications.
- C. The ENGINEER may require the use of crushed stone aggregates for purposes other than those specified in this or other Specification sections if such use is advisable in his opinion. Payment for crushed stone aggregate shall be by negotiation unless agreed pricing has been previously established.

1.02 RELATED WORK

- A. Dewatering is included in Section 02140.
- B. Earth and rock work is included in Section 02200.

1.03 SUBMITTALS

- A. Testing Service shall submit required test reports directly to the ENGINEER with copy to CONTRACTOR.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Crushed stone aggregate shall meet the applicable requirements for the intended use in accordance with Section 805 of the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, latest edition.
- B. Unless otherwise referred to on the Drawings or in these Specifications, crushed stone aggregate shall be graded size KY: No. 57 according to the table below.
- C. When referred to on the Drawings or in these Specifications, dense graded aggregate (DGA) shall have a sand equivalent value of not less than 25 and shall be graded according to the table below.

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D. Coarse aggregate gradations referred to by number size on the Drawings or in these Specifications shall conform to the following table (as copied from the above Kentucky Transportation Cabinet Specifications, Table 805.07, 1994 Edition.

TABLE I - SIZES OF COARSE AGGREGATES - KENTUCKY

| Size | Max. Size Square Openings (1) | AMOUNTS FINER THAN EACH LABORATORY SIEVE (SQUARE OPENINGS) PERCENTAGE BY WEIGHT | | | | | | | | | | | | | | | | | |
|----------------|-------------------------------|---|------------|--------|------------|--------|--------------|--------|----------|------------|-----------|--------------|--------------|------------|---------------|------------------|------------------|------------------|------------------|
| | | 100 (4) | 90 (3 1/2) | 75 (3) | 63 (2 1/2) | 50 (2) | 37.5 (1-1/2) | 25 (1) | 19 (3/4) | 12.5 (1/2) | 9.5 (3/8) | 4.75 (No. 4) | 2.36 (No. 8) | 2 (No. 10) | 1.18 (No. 16) | 600 (3) (No. 30) | 425 (3) (No. 40) | 150(3) (No. 100) | 75 (3) (No. 200) |
| 1 | 90 (3 1/2) | 100 | 90-100 | | 25-60 | | 0-15 | | 0-5 | | | | | | | | | | |
| 2 | 63 (2 1/2) | | | 100 | 90-100 | 35-70 | 0-15 | | 0-5 | | | | | | | | | | |
| 23 | 63 (2 1/2) | | | 100 | | 40-90 | | 0-15 | | 0-5 | | | | | | | | | |
| 3 | 50 (2) | | | | 100 | 90-100 | 35-70 | 0-15 | | 0-5 | | | | | | | | | |
| 357 | 50 (2) | | | | 100 | 95-100 | | 35-70 | | 10-30 | | | 0-5 | | | | | | |
| 4 | 37.5 (1-1/2) | | | | | 100 | 90-100 | 20-55 | 0-15 | | 0-5 | | | | | | | | |
| 467 | 37.5 (1-1/2) | | | | | 100 | 95-100 | | 35-70 | | 10-30 | 0-5 | | | | | | | |
| 5 | 25 (1) | | | | | | 100 | 90-100 | 20-55 | 0-10 | 0-5 | | | | | | | | |
| 57 | 25 (1) | | | | | | 100 | 95-100 | | 25-60 | | | 0-10 | 0-5 | | | | | |
| 610 | 25 (1) | | | | | | 100 | 85-100 | | 40-75 | | | 15-40 | | | | | | |
| 67 | 19 (3/4) | | | | | | | 100 | 90-100 | | 20-55 | 0-10 | 0-5 | | | | | | |
| 68 | 19 (3/4) | | | | | | | 100 | 90-100 | | 30-65 | 5-25 | 0-10 | | 0-5 | | | | |
| 710 | 19 (3/4) | | | | | | | 100 | 80-100 | | 30-75 | 0-30 | | | | | | | |
| 78 | 12.5 (1/2) | | | | | | | | 100 | 90-100 | 40-75 | 5-25 | 0-10 | | 0-5 | | | | |
| 8 | 9.5 (3/8) | | | | | | | | | 100 | 85-100 | 10-30 | 0-10 | | 0-5 | | | | |
| 9-M | 9.5 (3/8) | | | | | | | | | | 100 | 75-100 | 0-25 | 0-5 | | | | | |
| 10 | 4.75 (No. 4) | | | | | | | | | | 100 | 85-100 | | | | | | 10-30 | |
| 11 | 4.75 (No. 4) | | | | | | | | | | | 100 | 40-90 | 10-40 | | | | 0-5 | |
| DGA(2) | 19 (3/4) | | | | | | | 100 | 70-100 | | 50-80 | 30-65 | | | 10-40 | | | | 2-10 |
| GRAVEL BASE(2) | 37.5 (1-1/2) | | | | | 100 | | | | | | 25-65 | | | | | 6-30 | 5-20 | |
| CSB(2) | 50 (2) | | | | 100 | | 90-100 | | 60-95 | | 30-70 | 15-55 | | | 5-20 | | | | 0-8 |

(1) Nominal size in mm (inches), unless otherwise shown

(2) Gradation performed by wet sieve KM 64-420

(3) micrometers

E. Quality Control

1. Provide documentation verifying stone materials comply with KTCSSRBC.

PART 3 EXECUTION

3.01 INSTALLATION

A. Compacted Crushed Stone Aggregate

1. Crushed stone shall be placed in uniform layers not greater than 6 inches deep and shaped by power equipment to required lines, grades, cross connections, and depths. No minimum compacted density, method of compaction, or compaction equipment is required since a nominal amount of compaction effort with vibration can establish the desired intergranular locking of the aggregate under controlled placement depth. Acceptable compaction can be achieved with pneumatic-tired and tracked equipment and rollers.

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2. All compaction operations shall be performed to the satisfaction of the ENGINEER.
3. Crushed stone shall be placed in those areas as shown on the Drawings and as may be directed by the ENGINEER.

B. Compacted Dense Graded Aggregate (DGA)

1. Dense graded aggregate shall be plant mixed with water, transported in such a manner as to deliver the mix to the project without loss or segregation, spread, and compacted to produce a density throughout not less than 100 percent of solid volume. Minimum dry density for compacted limestone DGA shall be 139 pounds per cubic foot when S.G. of limestone is 2.65.
2. Density tests shall be required in such number as determined by the ENGINEER. Density tests shall be made by the sand cone method or by nuclear gauges. The CONTRACTOR shall furnish all necessary labor, equipment and materials for making the density tests under observations of the ENGINEER.
3. In the event compacted material does not meet the required density of an area, the CONTRACTOR shall either continue compaction efforts or rework the entire area until the required density is obtained. If material has to be removed and reworked, the ENGINEER shall determine if removed material can be remixed and used again for fill.

END OF SECTION

SECTION 02270

GEOTEXTILES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required to install geotextiles as shown on the Contract Drawings and as specified herein.

1.02 RELATED WORK

- A. Section 02200, Earth and Rock Work
- B. Section 02370, Erosion Prevention and Sediment Control.

1.03 SUBMITTALS

- A. The CONTRACTOR shall submit to the ENGINEER in accordance with the Special Conditions of the Specifications detailed material, performance and installation information on the geotextile fabric proposed for use. The ENGINEER shall review the submittal for acceptability prior to shipment of the fabric to the job site.

PART 2 PRODUCTS

2.01 MATERIAL

- A. The geotextile fabric shall consist of long chain polymeric filaments of either polyester or polypropylene formed into a stable network. Fabric shall be tear and puncture resistant and maintain the following minimum physical properties, when wet or dry, and be inert to commonly encountered chemicals in the soil.
- B. The geotextile fabric may be woven or nonwoven, and shall comply with the Kentucky Transportation Cabinet Standard Specification for Road and Bridge Construction for the conditions below:
 - 1. Slope Protection and Channel Lining: Type I.
 - 2. Underdrains: Type II.
 - 3. Subgrade or Encroachment Stabilization: Type III.
 - 4. Embankment Drainage Blankets and Pavement Edge Drains: Type IV.

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PART 3 EXECUTION

3.01 INSTALLATION

- A. The fabric shall be installed as recommended by the manufacturer for the application specified and/or shown on the Drawings. Manufacturer's printed instructions shall be strictly followed including storage of fabric rolls; subgrade preparation to prevent puncture; unrolling and positioning fabric; installing loosely to allow for settlement without rupture under crushed rock and riprap fills; and fabric lap distances which shall be a minimum of 1 foot unless otherwise required.

END OF SECTION

SECTION 02370

EROSION PREVENTION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.04 SUMMARY

- A. This section specifies erosion prevention and sedimentation control during construction.

1.05 RELATED SECTIONS

- A. Section 02110 - Clearing and Grubbing
- B. Section 02200 - Earth and Rock Work
- C. Section 02270 - Geotextiles
- D. Section 02930 - Sodding and Seeding

1.06 SUBMITTALS

- A. The CONTRACTOR shall submit a copy of the NOI to the University of Kentucky and the Kentucky Division of Water.
- B. The CONTRACTOR shall prepare the BMP plan as outlined by the ENGINEER in this Section and the plans and adjust it as needed and as stated therein for the actual site conditions.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect material from the weather during transit and storage.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Kentucky Erosion Prevention and Sediment Control Field Guide (KEPSCFG).
- B. Best Management Practices Plan.

2.02 BEST MANAGEMENT PRACTICES PLAN

- A. University of Kentucky-FEMA Nicholasville Road Flood Mitigation Project
 - 1. This National Pollutant Discharge Elimination System (NPDES) Best Management Practices (BMP) plan was developed in accordance with EPA requirements, the Kentucky Erosion Prevention and Sediment Control Field Guide (KEPSCFG) and good engineering practices for the University of Kentucky-FEMA Nicholasville Road Flood Mitigation Project. A copy of the Kentucky Erosion Prevention and Sediment Control Field Guide can be downloaded from the Kentucky Division of Water website

www.water.ky.gov/permitting/wastewaterpermitting/KPDES/storm/. The BMP plan identifies the potential sources of pollution that may reasonably be expected to affect the quality of storm water discharges from the project. The BMP plan provides the proper guidance for the CONTRACTOR to ensure the implementation of practices that are to be used to reduce the pollutants in storm water discharges and to assure compliance with the terms and conditions of the KPDES permit. The CONTRACTOR must implement the BMP plan as a condition of the KPDES permit.

B. Site Description

1. The construction of the University of Kentucky-FEMA Nicholasville Road Flood Mitigation Project is the cause of the site disturbance. When complete, the project will provide improved water quality and water quantity control.
2. The sequencing of major soil disturbing operations will proceed as follows:
 - a. Installation of perimeter erosion and sediment controls, stone construction exits, and temporary sediment basins. Due to construction activities and sequencing, these measures will be subject to modification and/or relocation.
 - b. Clearing and grubbing of proposed disturbed areas. Demolition of existing features to be removed, including existing sanitary sewer lines.
 - c. Excavation and site grading to construct new storm water control facilities, new parking lot, relocation of existing sanitary sewer facilities and installation of new storm drainage piping and structures.
 - d. Existing vegetation will be preserved where possible.
 - e. Stabilization shall begin within 14 days on areas that have been disturbed and construction activity has ceased, whether temporarily or permanently.
3. The site construction activities will result in the disturbance of approximately 25 acres over a 50 acre project site. All construction is on University of Kentucky property or adjacent road right-of-ways.
4. The present project site consists of existing roads, buildings and adjacent facilities, detention ponds, parking areas, green space and utilities. The project is part of a 240 acre watershed that covers the south portion of the University of Kentucky campus, including the Aboretum, Commonwealth Stadium, Greg Page Apartments and Shawneetown Apartments. All runoff from this watershed drains to an existing 5'x3' box culvert located under Nicholasville Road. Controlling storm water flows to this culvert is the basis for this project.

C. Sediment and Erosion Control Measures

1. This BMP plan includes a clear description of what sediment and erosion control measures will be used and when they will be implemented. The following list of control measures represent the basic measures to be implemented. Additional measures may be required as construction sequencing and activities require. The Erosion and Sediment Control Plan included in the project Drawings represent the initial phase for erosion and sediment control. Due to the construction scheduling and sequencing, the CONTRACTOR shall be responsible for preparing supplemental Erosion and Sediment Control Phasing plans. Reference details and specification found in the KEPSCFG.
2. Structural Practices for Soil Stabilization
 - a. Mulch: Mulch may be used for temporary stabilization for any disturbed area inactive for 14 days or longer for dust control and to reduce impact of rain on bare surfaces. Mulch is also used with Temporary and Permanent Seeding.
 - b. Temporary Seed: Use rye grain or annual rye grass seed for temporary seeding in disturbed areas not ready for permanent seeding when area is inactive for 14 days. Comply with the KEPSCFG for seed, fertilizer and mulch specifications.
 - c. Permanent Seed: See project specifications for installation of permanent seeding.
 - d. Construction Entrance: Install stone construction entrance at all locations where equipment and vehicles access paved surfaces from non-paved construction areas where there is risk of transporting mud or sediment onto paved surfaces.
 - e. Dust Control: Utilize watering of construction roads, mulching and vegetative cover to minimize dust.
 - f. Temporary Diversion Ditch: Install temporary diversion ditches with supporting berm on lower side to divert storm runoff to sediment from unprotected slopes to a stabilized outlet, to divert sediment-laden runoff from a disturbed area to a sediment pond, and to shorten the flow length within a long, sloping drainage area. Ditches shall be designed for the 10 year, 24 hour storm event. Ditches shall be parabolic or trapezoidal, V-shaped ditches shall not be constructed.
 - g. Impact Stilling Basin: Install stilling basins (rip rap outlet protection or other methods) at the outlet of culverts and storm pipes to dissipate discharge velocities.

3. Structural Practices for Sediment Control
 - a. Check Dam: Install temporary rock check dams in newly constructed vegetated, open channels that drain 10 acres or less. Use KYTC Class II channel lining with check dams spaced such that the top of the downstream dam is at the toe elevation of the upstream dam. The stone at the center of dam is to be a minimum of 1 foot below the stone at the edge.
 - b. Sediment Pond: Install sediment ponds in locations shown on the drawings utilizing existing and proposed detention basins. Storage volumes, based on the 2 year, 24 hour storm of 3.0 inches, are shown for the initial construction phase. Required volumes will be adjusted based on changes in construction progress. To the extent possible, storm water runoff from non-disturbed areas shall be diverted away from sediment ponds to improve efficiency and reduce required storage volumes.
 - c. Silt Fence: Install silt fencing around the perimeter of disturbed areas, including soil stockpile areas to control sediment from non-concentrated runoff. Install silt fencing prior to any further land disturbing activities.
 - d. Storm Drain Inlet Protection: Install sediment filters around storm surface and culvert inlets. Use measures appropriate for inlet conditions.
 - e. The CONTRACTOR will assume the responsibility for proper selection, application, and maintenance of appropriate soil stabilization and sediment control practices.
4. Storm Water Management Devices - Management devices shall be installed during construction to control the pollutants in storm water discharges that will occur after construction has been completed. Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive flow so that the original physical and biological characteristics and functions of the receiving waters, such as the hydroperiod and hydrodynamics, are maintained and protected. When considering storm water management devices, the goal should be 80 percent removal of Total Suspended Solids that exceed predevelopment levels. If this goal is not met, the University of Kentucky shall provide justification for refusing each device based on site conditions.
 - a. Management devices include velocity dissipation devices, storm water retention and detention basins, wet ponds, vegetated swales and natural depressions used for flow reduction, runoff infiltration devices, sequential systems that combine several devices and other appropriate measures. The installation of these devices may be subject to Section 404 of the CWA.

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- b. The CONTRACTOR will assume the responsibility for proper selection, application, and maintenance of appropriate storm water management devices.
- c. The University of Kentucky and the CONTRACTOR are not responsible for the maintenance of these devices once discharges associated with construction activity have been eliminated.

D. Other Control Measures

- 1. No solid materials, including building materials, shall be discharged to waters of the Commonwealth, except as authorized by a Section 404 permit.
- 2. Off-site vehicle sediment tracking and dust generation shall be minimized.
- 3. Waste disposal methods and sanitary sewer or septic systems shall comply with applicable state or local regulations.
- 4. The CONTRACTOR will assume the responsibility for taking the actions necessary to comply with the requirements listed in this section.

E. Other State or Local Plans

- 1. Compliance with the BMP plan shall include satisfying any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in the BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials.
- 2. The University of Kentucky will supply copies of any other applicable permits/plans and their requirements that must also meet compliance, and make the CONTRACTOR aware of the conditions of this section.

F. Maintenance

- 1. The requirements of this BMP plan include utilizing proper maintenance procedures necessary to keep the control measures in good and effective operating condition. The CONTRACTOR shall refer to the project plans and specifications for erosion and sediment control, and the manufacturer's specifications for guidance related to maintenance.

2. Structural Practices for Soil Stabilization

- a. Mulch: Mulched areas shall be inspected at least weekly and after every rainfall of one-half inch or more. When mulch is found loosened or removed, replace mulch within 48 hours.
- b. Temporary Seed: New seed shall have adequate water for growth until plants are firmly established. Inspect seeded areas every two weeks after planting and after each rainfall of 0.5 inches or more. Areas requiring seed and mulch will be repaired within 48 hours. If vegetative cover is not established within 21 days, the area shall be reseeded.
- c. Permanent Seed: New seed shall have adequate water for growth until plants are firmly established. Inspect seeded areas every two weeks after planting and after each rainfall of 0.5 inches or more. Areas requiring seed and mulch will be repaired within 48 hours. If vegetative cover is not established within 21 days, the area shall be reseeded. Reseed as needed to obtain groundcover density established in project specifications.
- d. Construction Entrance: Inspect construction entrance once each week and after there has been a high volume of traffic or rainfall of 0.2 inches or more. Construction entrance shall be maintained in a condition that will prevent tracking or flow of sediments onto paved surfaces.
 - (1) Provide periodic top dressing with additional stone, as conditions demand, and repair and/or cleanout of any structures used to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately.
- e. Dust Control: Observe site daily for evidence of windblown dust and take reasonable steps to reduce dust whenever possible. Inspect site weekly when site is inactive.
- f. Temporary Diversion Ditch: Bare and vegetated diversion channels shall be inspected regularly to check for points of scour or bank failure; rubbish or channel obstruction; breaching or settlement of ridge. Damaged channels shall be repaired immediately. Sediment deposits are to be removed. Reseed and fertilize channels as needed to establish vegetative cover.
- g. Impact Stilling Basin: Replace displaced stone and remove sediment as needed.

3. Structural Practices for Sediment Control

- a. Check Dam: Inspect check dams regularly to ensure the measure is in good working order and that the center of the dam is lower than the edges. Inspect after each rainfall and remove

accumulated sediment. Remove temporary check dams after channel has been completely vegetated. Repair area disturbed by dam removal.

- b. **Sediment Pond:** Sediment shall be removed when required design capacity is reduced by one-third. When permanent detention ponds are used for temporary sediment ponds, remove sediment pond outlet control measures, remove sediment, backfill and grade to final contours and seed. Temporary sediment ponds constructed separate from permanent detention ponds shall be removed completely, graded to final or pre-construction grades and seeded.
- c. **Silt Fence:** Inspect silt fences after each rainfall event and daily during prolonged rainfalls. Repair damaged or downed silt fencing immediately. Remove accumulated sediment.
- d. **Storm Drain Inlet Protection:** Inspect storm drain inlet protection measures periodically and after each rainfall event. Remove accumulated sediment. Repair or replace filter fabric and filter stone as needed. Remove inlet protection measures after all areas of the watershed have been stabilized. Repair damage to areas cause by inlet protection removal.

G. Inspections

1. Qualified personnel shall inspect all storm water control measures, discharge locations, vehicle exits, disturbed areas of the construction site, and material storage areas at least once every 7 days, and within 24 hours of the end of a storm that is 0.5 inches; and areas that have been temporarily or finally stabilized at least once a month. Revisions to the BMP plan based on the results of the inspection shall be implemented within 7 days.
2. Control measures shall be inspected to ensure correct operation. Accessible discharge locations shall be inspected to ensure that velocity dissipation devices are effective in preventing significant impacts to receiving waters. Vehicle exits shall be inspected for evidence of, or the potential for, off-site sediment tracking. Disturbed areas and material storage areas that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system.
3. A report summarizing the scope of the inspection, names and qualifications of personnel making the inspection, the date of the inspection, major observations relating to the implementation of the BMP plan, and any corrective actions taken shall be made and kept as part of the BMP plan for at least 3 years after the date of inspection, or until 1 year after coverage under this permit ends. The person conducting the inspection must sign the inspection form.

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4. Inspection reports to be posted or stored at the job site for review. The SWEPP plan and the KYR10 Coverage acknowledgement letter shall also be kept on site.

H. Non-Storm Water Discharges

1. All discharges from this construction site are storm water related and do not mix with storm water discharges from other industrial activities.

I. Contractors and Subcontractors

1. This BMP plan has been included in the contract documents for the CONTRACTOR use during bidding this project. The selected CONTRACTOR and their subcontractors are hereby made aware that they must clearly state the CONTRACTOR or subcontractors that will implement each control measure identified in the BMP plan after the contract has been awarded. All contractors and subcontractors identified in the BMP plan must sign a copy of the certification statement on the following page in accordance with PART II of the KPDES permit before conducting any professional service at the site.

J. Other Activities That Have Potential to Pollute Groundwater or Surface Runoff

1. Below are a series of activities that create the potential for groundwater or storm water runoff contamination.
 - a. Tank Storage
 - (1) Not applicable.
 - b. Transfer, Loading, and Unloading
 - (1) Transfer, loading, and unloading areas for fuel (gasoline and diesel), oil, and hydraulic fluid.

K. Practices Selected to Protect Groundwater and Storm Water Runoff from Pollution

1. This section is organized to address the sets of practices in place for each general activity listed above. Most practices for a given type of activity (tank storage, for example) are common to all items listed under that heading. Therefore, to avoid redundancy, these common practices are only listed once within a subheading and apply to all items listed within a general activity group. Where practices apply to individual items, a separate description is included identifying the item and the practice utilized. One additional subheading is included to cover practices that can apply to all aspects of the construction site.
 - a. Tank Storage Protection Practices (Storage of fuel, oil, and hydraulic fluid)

- (1) Notify Site Superintendent upon discovery of the problem. Notify other officials and/or agencies as necessary dependent on the nature of the situation.
- (2) All fuel, fluid and oil tanks have secondary containment structures.
- (3) Rainwater built up in secondary containment structures must be checked for presence of sheen prior to release. If sheen is present, the water must be considered hazardous waste, pumped into a compatible container and disposed of via a certified hazardous waste disposal company.
- (4) Personnel are trained to exercise due caution when filling or dispensing of fuels and oils to avoid spillage. Personnel are to be instructed to avoid overfilling tanks. Spills are to be cleaned up immediately upon occurrence or notification that one has occurred.
- (5) Spills shall be cleaned up using absorbent materials such as Oil Pickup (a dry powder). Contaminated soil will be removed and disposed of at a landfill approved for disposal of such waste or contacting an environmental remediation company for advice on disposal.

b. Transfer, Loading, and Unloading Protection Practices

- (1) Notify Site Superintendent upon discovery of the problem. Notify other officials and/or agencies as necessary dependent on the nature of the situation.
- (2) All oil and fuel locations have secondary containment structures.
- (3) Personnel are trained in proper containment, clean-up, and disposal procedures in the event of an accidental spill. If the spill is large enough an earthen berm will be constructed to contain the spill. Phone calls to the Project Manager and the KY Environmental Response Center shall be made in the event of a significant spill. Contaminated soil will be removed and disposed of at a landfill approved for disposal of such waste or contacting an environmental remediation company for advice on disposal.
- (4) Small spills cleaned with rags or other absorbent material (Oil Pickup) require proper disposal of the contaminated material by placing it in a plastic bag prior to disposal in the dumpster.
- (5) Personnel are trained to exercise due caution when filling or dispensing from fuel and oil tanks to avoid spillage. Personnel are to be instructed to avoid overfilling tanks.

Spills are to be cleaned up immediately upon occurrence or notification that one has occurred.

L. Emergency Contacts

1. An Emergency Contact List shall be located in the construction trailer and kept on file as part of the Emergency Response Plan. The list is updated on an as-needed basis when contact names and agencies may change.

M. Employee Training

1. This site is located in a karst region. Groundwater in this topography is highly sensitive to pollution. Even though the University of Kentucky is on "city" water, failure to follow the protective practices described above may potentially pollute wells and springs being used as water sources by folks living in rural areas. All employees will receive hands-on training in proper procedures required to comply with the BMP plan. All employees will go through a review of proper spill response techniques and general inspection protocol. Employees will receive training when new or modified protection measures are implemented, or when new equipment/unit processes are installed that has the potential to contaminate groundwater or storm water runoff in the event of a spill.

N. Signature and Plan Review

1. The BMP plan shall be signed by the CONTRACTOR and shall be kept onsite available for review.
2. The University of Kentucky shall make the BMP plan available upon request to the DOW Director or other authorized DOW agent.
3. After a review by authorized DOW agent, the University of Kentucky may be notified that the BMP plan does not meet the minimum requirements. At that point, the University of Kentucky shall modify the BMP plan within 7 days of notification and shall submit a written certification that the requested changes have been made.
4. BMP plans required by the KPDES permit are considered reports that shall be made available to the public, upon written request by the public, in accordance with Section 308(b) of the Clean Water Act (CWA). However, the University of Kentucky may claim any portion of the BMP plan as confidential, in accordance with 40 CFR Part 2.

O. Plan Modification

1. The CONTRACTOR shall modify the BMP plan when there is a change in design, construction, operation, or maintenance of the site which has a significant effect on the potential for the discharge of pollutants to waters of the Commonwealth and shall implement the changes within 7 days.

P. Modification for Ineffectiveness

1. The CONTRACTOR shall amend the BMP plan if it proves to be ineffective in controlling the discharge of pollutants to waters of the Commonwealth and shall implement the changes within 7 days. The CONTRACTOR is responsible for the plan, its implementation, and maintenance.

Q. Certification Statement

"I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification."

Name (printed) : _____

Title : _____

Firm Name : _____

Address : _____

Phone Number : _____

Site Address or Description: University of Kentucky-FEMA Nicholasville Road

Flood Mitigation Project

Signature : _____

Date : _____

PART 3 - EXECUTION

3.01 EXECUTION

- A. The CONTRACTOR shall implement the Storm Water Pollution Prevention Plan or Best Management Practices (BMP) Plan supplied by the ENGINEER in this Section. It shall be adjusted as needed and as stated therein for the actual site conditions. A copy of the BMP plan shall be kept on the project site. For questions regarding BMP plan implementation requirements, etc., refer to the latest edition of the Kentucky Erosion Prevention and Sediment Control Field

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Guide which may be obtained at the Division of Water website,
www.water.ky.gov/permitting/waterwaterpermitting/KPDES;storm.

- B. The CONTRACTOR shall submit a Notice of Intent (NOI) to the **Kentucky Division of Water** at least 48 hours before any construction begins.
- C. All storm drains that discharge into a drainage channel, stream, lake, etc., and not onto an open field shall have an inlet sediment control device similar to the Siltsack as manufactured by ACF Environmental or Dandy Bag II by Dandy Products, or equal.
- D. Rock checks shall be used to trap sediment traveling along drainage channels, etc., straw bales are not acceptable.
- E. Any construction access road, etc., that joins any paved driveway, or road shall have a crushed stone entrance created according to the drawings and the Kentucky Erosion Prevention and Sediment Control Field Guide.
- F. Storm water runoff from undisturbed areas shall be diverted around construction sites by the use of diversion berms or diversion ditches.
- G. When silt fences and other sediment trapping devices become half full they shall be cleaned out to near new installation condition and put back into service.
- H. See attached University of Kentucky Construction Site Stormwater Inspection Report.

END OF SECTION

Attachment: University of Kentucky Construction Site Stormwater Inspection Report

University of Kentucky Construction Site Stormwater Inspection Report

| General Information | |
|--|------------------|
| Project Name | |
| Facility Operator (Name on KPDES form NOI-SW) | |
| KPDES Tracking No. | Location: |
| Date of Inspection | |
| Inspector's Name(s) | |
| Inspector's Contact Info | |
| Describe present work phase | |
| Type of Inspection: <input type="checkbox"/> Regular Weekly <input type="checkbox"/> Regular Bi-Weekly <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm <input type="checkbox"/> Post-Storm Event | |
| Weather Information | |
| Has there been a storm event since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, provide: Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in): | |
| Stormwater Pollution Prevention Plan on site and available for review | |
| Weather at time of this inspection? <input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snowing <input type="checkbox"/> High Winds <input type="checkbox"/> Other Temperature: | |
| Have any discharges of sediment or other pollutants occurred since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: | |
| Are there any discharges of sediment of pollutants at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, describe: | |

Site Specific BMPs

Number the structural and non-structural BMPs identified in your SWPPP on your site map and list them below. Add as many BMPs as necessary. Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.

| | BMP Type or Name | BMP Installed? | Maintenance Required? | Corrective Action Needed and Notes |
|----|---|--|--|------------------------------------|
| 1 | Engineer's Erosion and Sediment Control Plan is on site | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 2 | Engineer's Erosion and Sediment Control Plan is being followed | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 3 | Construction entrance and parking areas are stabilized with stone | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4 | Disturbed areas inactive for 14 days are seeded and mulched | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5 | Silt fence is installed and maintained | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 6 | Sediment ponds/traps are installed and maintained | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 7 | Diversion channels are installed and stabilized | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8 | Checked dams are installed and maintained | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9 | Soil stockpiles are stabilized | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10 | Erosion control blanket is installed | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11 | Channels are stabilized with proper channel lining | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12 | Dewatering operations are filtered before discharging to stream | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |

| | BMP Type or Name | BMP Installed? | Maintenance Required? | Corrective Action Needed and Notes |
|----|--|--|--|---|
| 13 | Are all slopes and disturbed areas not being worked properly stabilized? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 14 | Are discharge points and receiving waters free of any sediment deposits? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 15 | Are storm drain inlets properly protected? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16 | Is the construction exit preventing sediment from being tracked into the street? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 17 | Is trash/litter from work areas collected and placed in covered waste containers? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 18 | Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 19 | Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other material? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 20 | Are materials that are potential stormwater contaminants stored inside or under cover? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 21 | Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | |

Non-Compliance

| |
|---|
| Describe any incidents of non-compliance not described above: |
|---|

CERTIFICATION STATEMENT

“I certify under penalty of law that this document and all attachments were prepared under my direction of supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print name and title: _____

Signature: _____ **Date:** _____

SECTION 02400

STREETS, ROADS AND PARKING AREAS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment, and services required to construct parking area and trails as shown on the Contract Drawings and as specified herein.

1.02 RELATED WORK

- A. Crushed stone, DGA, paving and concrete are specified in other sections of Division 2.

1.03 SUBMITTALS

- A. Shop drawings, manufacturer's data and other items needed to establish compliance with the Drawings and these Specifications shall be submitted to the ENGINEER in accordance with the Special Conditions of the Contract.

1.04 WARRANTY

- A. Refer to the Special Conditions of the Contract for general warranty requirements.

PART 2 PRODUCTS

2.01 CONSTRUCTION MATERIALS

- A. Concrete materials and methods of installation are specified in Section 03301.
- B. Drainage pipe and methods of installation are specified in Section 02720.
- C. Crushed stone and dense graded aggregate materials are specified in Section 02235.
- D. Geotextiles are specified in Section 02270.
- E. Bituminous paving materials and methods of placement are specified in Section 02500.
- F. Concrete paving materials and methods of placement are specified in Section 02510.
- G. Sodding and seeding materials and methods of construction are specified in Section 02930.

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H. Joint Sealants and Backing for Sealants

1. For sealing horizontal exposed faces of joint fillers, use Sonneborn-Contech Sonolastic SL1, one-part, self-leveling, polyurethane sealant with Primer No. 733 or equivalent W.R. Grace Co. products, or equal.
2. Where additional sealant backing is needed to control the depth of sealant in relation to joint width, use Sonneborn-Contech Sonoflex F foam expansion joint filler, Sonofoam Backer Rod (closed cell polyethylene foam), or equivalent W.R. Grace Co. products, or equal.

PART 3 EXECUTION

3.01 DELIVERY, STORAGE AND HANDLING

A. Clearing and Grubbing

1. Clearing and grubbing requirements shall be as stated in Section 202 of KTCSSRBC except that the method of payment as stated therein shall not apply.

B. Removal of Structures and Obstructions

1. Removal of structures and obstructions requirements shall be as stated in Section 203 - KTCSSRBC.

C. Roadway and Drainage Excavation

1. The requirements for roadway and drainage excavation shall be as stated in Section 204 of KTCSSRBC.

D. Ditching and Shouldering

1. The requirements for ditching and shouldering shall be as stated in KTCSSRBC Section 210.

E. Final Dressing

1. The requirements for final roadway dressing shall be as stated in KTCSSRBC Section 211. Final dressing shall meet the requirements under Final Dressing - Class A.

F. Erosion Control

1. Requirements for erosion control shall be as delineated in Section 02370—Erosion Control and Sediment Control and Section 02930-Sodding and Seeding of these Specifications. When work is located within Department of Highways rights-of-way, the requirements for erosion control shall be as delineated in KTCSSRBC - Section 212.

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G. Water Pollution Control

1. The requirements for water pollution control shall be per KTCSSRBC Section 213.

H. Drainage Structures and Conduits

1. The requirements for drainage structures and conduits shall be as specified in Section 03301 - Cast-in-Place Concrete and in Section 02720 - Storm Sewer.

I. Aggregate Surfaces and Base Courses for Paved Surface

1. The requirements for crushed stone aggregate and base courses for paved surfaces are specified in Section 02235.

J. Paved Surfaces

1. Bituminous Pavements

- a. The requirements for bituminous paving are as shown in Section 02500 of these Specifications.

2. Concrete Pavements

- a. The requirements for concrete pavements are as shown in Section 02510 of these Specifications.

END OF SECTION

SECTION 02500

ASPHALT PAVING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The CONTRACTOR shall be required to supply all materials and equipment, and perform all work for the placement of the base binder and surface course for new paved parking, driveways, and roadways. Work also includes restoring to the preconstruction condition the surface of the existing streets, roads, driveways, and parking areas to the depths as shown in the detailed drawings and specified herein.

1.02 REFERENCES

- A. Unless noted, all Specifications designations denoted KTCSSRBC refer to the Kentucky Transportation Cabinet Department of Highways Standard Specification for Road and Bridge Construction. Appropriate technical portions of the referenced sections of the Specifications shall apply, but all work and method of payment shall be as described herein unless otherwise specified or shown on the Drawings.

1.03 RELATED WORK

- A. Special sequence or schedule requirements (if any) are specified in Section 01010 - Summary of Work.
- B. Special requirements for materials and equipment are given in the Special Conditions of the Contract.
- C. Crushed stone surfacing requirements, temporary and permanent replacement, are specified in Section 02235 of these Specifications.

1.04 QUALIFICATIONS

- A. The pavement design mixture shall be used as determined by local plant mix availability. The design mixture shall have been approved recently by the Kentucky Transportation Cabinet Department of Highways and used recently on a state paving project.
- B. The design mix shall be submitted to the ENGINEER for review and acceptance. The submittal shall include the following:
 - 1. The last date the mixture was approved by the Kentucky Transportation Cabinet Department of Highways for use on a state road project.
 - 2. The location where the mixture was recently used, and the name and address of the paving contractor.

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1.05 SUBMITTALS

- A. Prebid submittals, when required, are specified in Section 00820 - Special Conditions of these specifications.
- B. Shop Drawings, manufacturers data and other items needed to establish compliance with the Drawings and Specifications shall be submitted to the ENGINEER in accordance with the Special Conditions of the Contract.

1.06 WARRANTY

- A. Refer to the Special Conditions of the Contract for warranty requirements.

PART 2 PRODUCTS

2.01 ASPHALT PAVING

A. Mixture

- 1. The asphaltic paving provided for use on this Contract shall conform to the applicable requirements of KTCSSRBC Section 401, Asphalt Plant Requirements; Section 402, Control and Acceptance of Asphalt Mixtures; and Section 403, Production and Placement of Asphalt Mixtures. The pavement mixture shall meet the requirements of Section 403.03.03.

- B. Fine aggregates shall meet the requirements of KTCSSRBC Section 804.
- C. Coarse aggregates shall meet the requirements of KTCSSRBC Section 805.
- D. Asphaltic materials shall meet the requirements of KTCSSRBC Section 806.
- E. Asphaltic materials for tack coat shall be one of the following: SS-1, SS-1h, CSS-1, CSS-1h, AE-60, RS-1, or CRS-1, conforming to Section 406.

2.02 FACILITIES ADJUSTMENT MATERIALS

- A. Manhole adjusting rings shall be cast iron, Neenah R-1979, J.R. Hoe, or equal. Maximum adjustment shall be 3 inches.
- B. Valve box adjusting rings shall be cast iron, Tyler Type MWW riser with 3 inches maximum adjustment.

2.03 PAVEMENT STRIPING MATERIALS

- A. Pavement striping for all areas to receive asphalt paving, whether full width pavement overlay, trench width pavement replacement, or newly constructed access roads or parking areas, shall meet the requirements of Section 748 of the KTCSSRBC for placement and Section 842 for striping material.

PART 3 EXECUTION

3.01 GENERAL

- A. Construction requirements shall conform to applicable requirements of Section 403 of KTCSSRBC.
- B. A tack coat shall be required to bond new paving to the surface of concrete or brick pavements and bases or existing asphalt surfaces. It shall be applied at the rate of 0.8 pound (0.1 gallon) per square yard at the following range of application temperatures:

| | |
|-----------------------------------|-----------|
| SS-1, SS-1h, CSS-1, CSS-1h, AE-60 | 70-160°F |
| RS-1 | 70-140°F |
| CRS-1 | 120-185°F |

- C. When SS1, SS1h, CSS1, CSS1h, or AE60 is furnished for tack material, it shall be diluted with an equal quantity of water conforming to Section 803, shall be thoroughly mixed prior to application, and shall be applied a sufficient time in advance of the paver to ensure that all water has evaporated before the asphalt mixture is placed. The application rate shall be 0.8 pound (0.1 gallon) per square yard of the diluted SS1, SS1h, CSS1, CSS1h, or AE60.
- D. Where asphalt paving is placed against vertical surfaces such as curbs, gutters, manhole frames, valve boxes, etc., the vertical face shall be tack coated in order to seal the surface. Where these surfaces are inaccessible to pressure distributor, the tack coat may be brushed or broomed into place. The tack coat shall not be allowed to spill over onto any horizontal surface outside the area to be paved.
- E. Unless otherwise indicated on the Drawings or in these Specifications, the compacted thickness of the asphalt paving shall be a minimum of 1.5 inches and the minimum ambient temperature for mixing and laying temperatures shall be as follows:

| | |
|---------------------------------------|------|
| Open Graded Friction Course | 60°F |
| Asphalt Mixture (1-Inch Thick) | 45°F |
| Asphalt Mixture (thicker than 1-inch) | 40°F |
| Asphalt Mixture (Base and Binder) | 35°F |
| Leveling and Wedging | 45°F |

- F. Trucks for hauling asphaltic mixtures shall have tight, clean, and smooth metal beds that have been sprayed with a minimum amount of soap emulsion, paraffin oil, or other approved material which is not detrimental to the mixture to prevent the mixture from adhering to the beds. All trucks shall be equipped with covers of sufficient size to completely cover the loaded material, and all covers shall be securely fastened in place before the truck leaves the plant. Truck beds shall be insulated, when necessary, to maintain the specified temperature to the point of delivery. Any truck causing excessive segregation of material by its spring suspension or other contributing factors, shall be discharged from the work, until such conditions are corrected.

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- G. The CONTRACTOR shall have an accurate thermometer on the job at all times for verifying all temperature requirements and for taking temperature measurements whenever requested by the ENGINEER or OWNER. The CONTRACTOR shall closely control temperature and compaction requirements in order to achieve quality asphalt paving and related work.
- H. Asphalt paving which fails as the result of not meeting the requirements of these Specifications shall be removed and replaced as directed by the ENGINEER at the CONTRACTOR'S expense.
- I. Where manhole frames, valve boxes, drainage grates, etc., are located within the area to receive asphalt paving replacement, those facilities shall be adjusted to final pavement grade prior to the placement of the asphalt surface. Where the facilities to be adjusted are the property of the OWNER, the CONTRACTOR shall adjust the facilities with the cost included in the CONTRACTOR'S bid for asphalt pavement. Where the facilities to be adjusted are the property of other utility companies, i.e., gas, water, electric, telephone, the CONTRACTOR shall notify each utility company of the schedule for repaving of the particular area to allow those companies sufficient time to adjust their facilities prior to beginning the paving process.
- J. Where pavement striping is destroyed or damaged, it shall be replaced per the requirements stated herein. The cost of all striping, unless stated otherwise in these specifications, shall be included in the price bid for pavement replacement.

3.02 NEW PARKING AREAS

A. Examination

- 1. Verify that subgrade is dry and in suitable condition to begin paving.
- 2. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - a. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 - b. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
 - c. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by ENGINEER, and replace with compacted backfill or fill as directed.
- 3. Proceed with paving only after unsatisfactory conditions have been corrected.

B. Surface Preparation

1. General

- a. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure prepared subgrade is ready to receive paving.

2. Prime Coat

- a. Apply uniformly over surface of compacted unbound-aggregate base course at a rate of 0.15 to 0.50 gal/sq yd. Apply enough material to penetrate and seal but not flood surface. Allow prime coat to cure.
 - (1) If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
 - (2) Protect primed substrate from damage until ready to receive paving.

3. Tack Coat

- a. Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal/sq yd.
 - (1) Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - (2) Avoid smearing or staining adjoin surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

C. Hot-Mix Asphalt Placing

- 1. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike-off. Place asphalt mix by hand to areas inaccessible to equipment in a manner which prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - a. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
 - b. Place hot-mix asphalt surface course in single lift.
 - c. Spread mix at minimum temperature of 250 degrees Fahrenheit.

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- d. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
 - e. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt paving mat.
2. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
 - a. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
 3. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

D. Joints

1. Construct joints to ensure a continuous bond between adjoining paving sections. construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 - a. Clean contact surfaces and apply tack coat to joints.
 - b. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
 - c. Off set transverse joint, in successive courses, a minimum of 24 inches.
 - d. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time.
 - e. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
 - f. Compact asphalt at joints to a density within 2 percent of specified course density.

E. Compaction

1. General
 - a. Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.

- (1) Complete compaction before mix temperature cools to 185 degrees Fahrenheit.
2. Breakdown Rolling
 - a. Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
3. Intermediate Rolling
 - a. Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - (1) Average Density shall be 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
4. Finish Rolling
 - a. Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
5. Edge Shaping
 - a. While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
6. Repairs
 - a. Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
7. Protection
 - a. After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
8. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

F. Installation Tolerances

1. Pavement Thickness

a. Compact each course to produce the thickness indicated within the following tolerances:

- (1) Base Course: Plus or minus 1/2-inch
- (2) Surface Course: Plus 1/4-inch, no minus

2. Pavement Surface Smoothness

a. Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

- (1) Base Course: 1/4-inch
- (2) Surface Course: 1/8-inch
- (3) Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4-inch.

G. Pavement Marking

- 1. Do not apply pavement-marking paint until layout, colors, and placement have been verified with ENGINEER.
- 2. Allow paving to age for 30 days before starting pavement marking.
- 3. Sweep and clean surface to eliminate loose material and dust.
- 4. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.03 TRENCH WIDTH REPAVING - CITY AND UNIVERSITY STREETS, ROADS AND PARKING AREAS

- A. The cut edges of the existing paving surface shall be trimmed a depth of at least 2 inches to straight lines for uniform appearance and clean surface at joints. The area between the cut edges of the paving shall be removed to a depth of 2 inches (minimum) or to the bottom of the existing paving. All unstable material in the trench shall be removed and replaced with compacted dense graded aggregate and dense graded aggregate added as needed to bring the base surface to the bottom of existing paving or 2 inches below the existing surface, whichever is the lower. Dense graded aggregate required for stabilizing the subgrade will be paid for as an extra, but no extra payment will be allowed for removal of unstable back-fill.

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- B. The paving subgrade shall be compacted under the wheel of a roller, until there is no observed settlement of the subgrade.
- C. The sides of existing pavement shall be covered with a tack coat and asphalt paving shall be hot applied as previously described. Final surface shall be finished to 1/4-inch above existing paving surface at edges and crowned to ½ inch above existing surface at the center.
- D. Asphalt repaving of pipeline covered to any width the CONTRACTOR shall find necessary to remove plus width of cut back to secure clean straight edges, and shall include excavation to subgrade, preparation of subgrade, cleaning edges of existing paving, tack coat, and all operations and materials planned and specified for this type of repaving. The CONTRACTOR shall maintain such repaving up to grade of existing street surface until final completion and acceptance of work under his Contract. During the guarantee period of one year, the CONTRACTOR will be responsible for defective materials or workmanship, and natural settlement.
- E. In case additional asphalt paving is to be added due to settlement, the surface which has experienced settlement shall be cut out, additional dense graded aggregate added if necessary, tack coat applied to the existing sides of existing pavement, and the paving in the settled area(s) replaced. Additional payment will not be allowed for the repair work required.

3.04 TRENCH WIDTH REPAVING - STATE MAINTAINED STREETS AND HIGHWAYS

- A. Streets, roads and highways maintained by the Kentucky Transportation Cabinet Department of Highways shall be repaved in accordance with details shown on the attached Department of Highways Drawing No. TD 99-13, latest revision.
- B. Concrete base slab shall be cleaned and tack coated, and asphalt paving shall be hot applied as previously described.
- C. Replacement of asphalt paving on state maintained streets and roads, where concrete base slab and asphalt surface are required, shall include excavation, crushed rock or flowable fill backfill, base courses, concrete base slab, tack coat, and asphalt surfacing. Widths, depths, and other details and methods of application shall be as shown on attached drawing and as required by the Kentucky Transportation Cabinet Department of Highways.
- D. The CONTRACTOR shall maintain the surface of all state highways and state maintained streets to grade during the entire guarantee period of the Contract.

3.05 FIELD QUALITY CONTROL

- A. Testing Agency
 - 1. Engage a qualified testing agency to perform tests and inspections.

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B. Thickness

1. In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.

C. Surface Smoothness

1. Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

D. In-Place Density

1. Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to ASTM D 979.
 - a. Reference maximum theoretical density will be determined by averaging results from 4 samples of hot-mix, asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
 - b. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.
 - (1) One core sample will be taken for every 1000 sq yd or less of installed pavement, with no fewer than 3 cores taken.
 - (2) Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.

E. Replace and compact hot-mix asphalt where core tests were taken.

F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

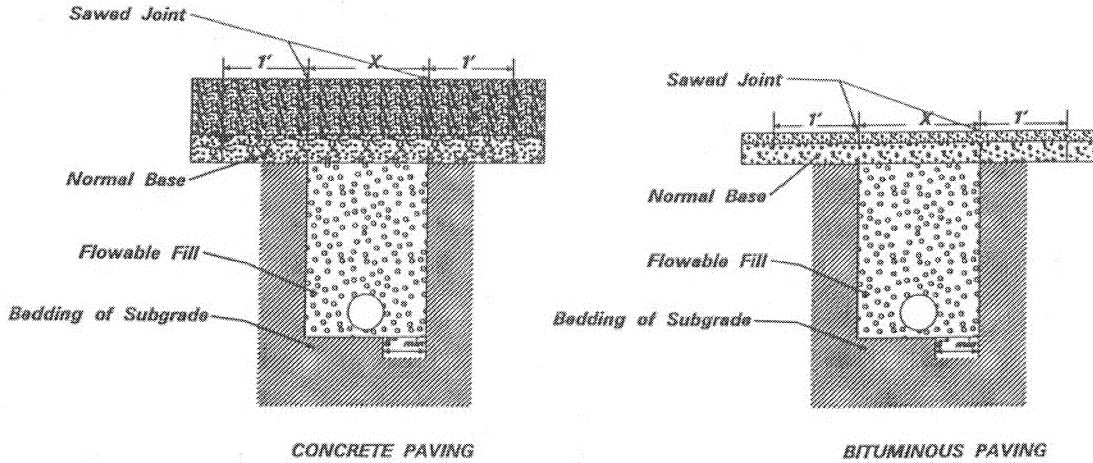
3.06 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from project site and legally dispose of them in an EPA-approved landfill. Do not allow milled materials to accumulate onsite.

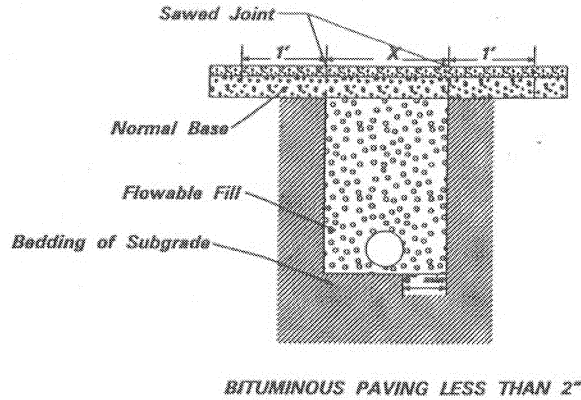
END OF SECTION

Attachment: Kentucky Department of Highways drawing No. TC 99-13.

COMMONWEALTH OF KENTUCKY DEPARTMENT OF HIGHWAYS RESTORATION District Seven Permits



- General Notes:**
1. Fill extends to bottom of pavement structure.
 2. Replace pavement with existing type and thickness.
 3. Fill material must be agitated during transportation and waiting.
 4. If the sawed joints are less than 6' from an existing joint or break in pavement, remove slab to break or joint.



FLOWABLE FILL SPECIFICATIONS:

Flowable fill ingredients must meet the requirements of the Kentucky Department of Highways as set forth in the manual of standard specifications

Proportioned as follows per cubic yard batch:

| | |
|------------------|--------------|
| Cement | 30 Pounds |
| Fly Ash, Class F | 300 Pounds |
| Sand (SSD) | 3,000 Pounds |
| Water (max) | 550 Pounds |

- Note:**
1. The proposed mixture shall be proportioned to obtain a minimum flow of 8 inches when tested with a 3 inch by 6 inch open ended cylinder modified flow test and meets acceptable strength requirements.
 2. The mixture shall bleed freely within 10 minutes.
 3. The mixture shall support a 150 pound person within 3 hours.
 4. Flowable fill shall be in place for 2 hours prior to addition and compaction of cover material.

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SECTION 02510
CONCRETE PAVING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required to construct concrete sidewalks, concrete curbs and gutters as shown on the Contract Drawings and as specified herein.

1.02 RELATED WORK

- A. Grading and drainage of streets, roads and parking areas are as specified in Section 02400.
- B. Crushed stone bases, if required, are as specified in Section 02235.
- C. Castings are specified in Section 05540.

1.03 WORK DESCRIPTION

- A. Not used.

1.04 SUBMITTALS

- A. Prebid submittals, if required, are specified in the Special Conditions of the Contract.
- B. Shop drawings and other items needed to establish compliance with the Drawings and these Specifications shall be submitted to the ENGINEER in accordance with the Special Conditions of the Contract.

1.05 WARRANTY

- A. Refer to the Special Conditions of the Contract for warranty requirements.

PART 2 PRODUCTS

2.01 CONCRETE MATERIALS

- A. Concrete and related materials are specified in Section 03301.

PART 3 EXECUTION

3.01 CONCRETE CURBS AND GUTTERS

- A. Cast in place curbs and gutters and pre-cast curbs and gutters shall be as specified in Section 713 of the Kentucky Transportation Cabinet, Department of Highways Standard Specifications for Road and Bridge Construction.

- B. Concrete lip curbs and integral curbs shall be as specified in Section 714 of the Kentucky Transportation Cabinet, Department of Highways Standard Specifications for Road and Bridge Construction.

3.02 CONCRETE SIDEWALKS AND STEPS

A. New Construction

1. Concrete sidewalks and steps shall be dimensioned and reinforced as shown on the Drawings.
2. Sidewalks and steps shall be constructed on a prepared, compacted, smooth subgrade of uniform density formed by trenching or filling to the required elevation. Large boulders and ledge rock found in the subgrade shall be removed to a minimum depth of 6 inches below the subgrade elevation and the space shall be backfilled with suitable material which shall be thoroughly compacted by rolling or tamping. A 3-inch thick course of No. 9 coarse aggregate shall be placed on prepared subgrade prior to placing concrete walks. The CONTRACTOR shall furnish a template and shall check the finished subgrade prior to depositing concrete. The subgrade shall be moistened immediately prior to placement of concrete. Sidewalks may be placed by use of side forms or by use of an acceptable slip-form method.
3. All exposed edges and corners for sidewalks and steps shall be rounded to a 1/4 inch radius.
4. The surfaces of sidewalks shall be divided into rectangular areas by means of a jointer having a radius of 1/4 inch and forming a groove no less than 1 inch in depth for the full width of the walk, or the joints may be sawed if acceptable to the ENGINEER. The length of the rectangles formed shall not exceed the width of the sidewalk being constructed, unless otherwise directed.
5. The CONTRACTOR shall install 1/2 inch premolded expansion joints, specified in Section 03300, extending entirely through the sidewalk at intervals not to exceed 40 feet, unless the sidewalk is constructed integral with the curb, in which case the width of joints and spacing shall conform to that in the curb, or as otherwise directed. The edges of the sidewalk at all expansion joints shall be rounded with an acceptable edging tool to a 1/4-inch radius. One-half inch premolded expansion joint material shall be installed to the full depth of the sidewalk where the walk abuts any rigid structure or fixture such as curbs, columns, castings, buildings, light standard, etc.

B. Replacement Construction

1. Replacement construction shall be the same as required above for new construction except as hereinafter set forth.

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2. Sidewalks shall be replaced to the same width, grade and thickness (3-1/2 inches minimum) as the original sidewalk, unless otherwise directed by the ENGINEER. In replacing concrete walks against edge of existing walks, the existing edges shall be sawed to straight edges and thoroughly cleaned. The new and existing walks shall be separated by 1/2-inch premolded expansion joint material cemented to the existing walk.
3. Concrete curb and gutter shall be protected by the CONTRACTOR and shall not be removed except in the event of solid rock excavation and/or conflict with existing utilities. Grass strips between sidewalks and curbs shall be reseeded in accordance with Section 02930 of these Specifications.

3.04 CROSSWALK MARKINGS

- A. Crosswalk marking shall meet the requirements Section 3B.18 of the Manual of Uniform Traffic Control Devices (MUTCD).

END OF SECTION

SECTION 02720

STORM SEWER

PART 1 GENERAL

1.01 SUMMARY

- A. The work covered by this section shall consist of furnishing, laying, jointing storm sewer pipe and fittings, and furnishing and installation of manholes, catch basins, area drains, and other structures incidental to the construction of storm sewers.

1.02 RELATED SECTIONS

- A. Section 02200 – Earth and Rock Work

PART 2 PRODUCTS

2.01 GENERAL

- A. The diameter of pipe culverts and storm drains shown on the project drawings and bid schedule are based on Manning's formula for pipe flowing full, and the slopes shown on the drawings and profiles. Any alternative materials and types of pipe culverts and storm drains will be indicated on project drawings or shall be approved by ENGINEER during the bid phase of project by written addendum.

2.02 SEWER PIPE MATERIALS

- A. Reinforced Concrete Pipe (RCP): All concrete sewer pipe with an internal diameter of 12 inches or less shall be extra strength sewer pipe conforming to ASTM C14. All concrete pipe with an internal diameter of 15 inches or more shall be Class III (unless otherwise noted on plans) reinforced concrete pipe conforming to ASTM C76. Horizontal elliptical shall conform to C-507 Class HE-II, HE-III, or HE-IV as specified on the drawings.
- B. Corrugated Metal Pipe (CMP): Shall conform to the requirements of AASHTO M36 specifications for corrugated metal culvert pipe or AASHTO M 274 for aluminum coated steel pipe. Pipe diameters of 15-inches or smaller shall be 14-gauge minimum. Pipe diameters from 18-inch to 48-inch shall be 12-gauge minimum. Pipe diameters of 54-inch or greater shall be 10-gauge minimum.
- C. High Density Polyethylene Pipe (HDPE): Pipe and appurtenances shall be high density polyethylene conforming to the requirements of AASHTO M294 or ASTM F 894 as applicable. The pipe shall have a smooth interior and annular-corrugated exterior or profile wall pipe smooth interior for large diameter pipe. Polyethylene pipe materials shall be high-density polyethylene meeting ASTM D 3350 minimum cell classification 335420c. The use of reground materials is not allowed.
- D. Polypropylene Pipe (PP): Pipe and appurtenances shall be polypropylene conforming to the requirements of AASHTO M330 and ASTM F 276 (12-inch

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through 30-inch) and ASTM F 2881 (36-inch through 60-inch) as applicable. Pipe shall have a smooth interior and an annular corrugated exterior. Polypropylene pipe material shall meet the requirements of ASTM F 2736, Section 4; ASTM F2881, Section 5; and AASHTO M330, Section 6.1, for the respective diameters.

- E. The CONTRACTOR shall require the manufacturer or supplier furnish a certification that all materials furnished meet the above listed standards and materials specifications.

2.03 STORM PIPE ACCESSORIES

A. Joint Materials:

1. Butyl Mastic Joints or Rubber Gasket for RCP: "Soil-Tight" joints for RCP may be accomplished by using a butyl mastic sealant or a rubber gasket in the joint. The butyl mastic joint material shall meet the requirements of AASHTO M 198 (Type B). The rubber gasket joint material shall meet the physical property requirements set forth in ASTM 443.
2. Rubber "O" Ring or Profile Gasket Joints for RCP: The bell and spigot or the tongue and groove of the pipe shall be specially manufactured and prepared for the type of joint selected. The rubber gaskets shall meet the requirements of ASTM C443. Rubber gasket joints per ASTM C 443 will only be required in installations that require a watertight joint. RCP will be used on all watertight systems.
3. O-Ring Rubber Gasket Joints for HDPE: Joints shall consist of a bell and spigot type joint with an O-ring rubber gasket meeting the requirements of ASTM F477. All HDPE installations will require a rubber gasket meeting the above requirements.
4. O-Ring Rubber Gasket Joints for Polypropylene Pipe: Joints shall consist of an integral bell and spigot joint with gaskets meeting the requirements of ASTM F 477. All polypropylene installations will require rubber gaskets meeting the above requirements.

- B. Couplings for CMP: Couplings shall be of the same material and as the pipe and corrugated to match the corrugations. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Use "Hugger" type connecting bands with rubber "O" ring gaskets meeting ASTM D1056 for all CMP installations.

2.04 STRUCTURES AND APPURTENANCES

- A. Catch basins, manholes, and area drains shall be precast concrete as shown on the Plans or as otherwise directed by the ENGINEER. Round Precast concrete structures shall meet the applicable requirements of ASTM C478 with a minimum $f'c = 4,000$ psi. Square and or Rectangular precast concrete structures shall meet ASTM C 913.

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- B. Grates, Frames, And Curb Castings: Conforming to the requirements of ASTM A-48, Class 30. Machining of contact surfaces will be required so that covers and grates rest securely on the frames.
- C. Ladder Bars: Shall be made of aluminum alloy conforming to Federal Specification QQ-A-200/8.
- D. Steps for Storm Manholes and Catch Basins: Steps shall conform to ASTM C 478 and shall be steel reinforced copolymer polypropylene with the materials conforming to the following:
 - 1. The deformed steel reinforcing bar shall be ½ inch conforming to ASTM A-615 Grade 60.
 - 2. The copolymer polypropylene shall conform to ASTM D4101-95b PP0344B33534Z02.
- E. Mortar: Shall be composed of one part Portland cement and 2 parts sand (volumetric measure). Mortar that has been mixed for more than 30 minutes which has been retempered or which has "set" shall not be used in the work.
- F. Headwalls and End Sections: Shall be precast concrete as shown on the Plans or as otherwise directed by the ENGINEER.

PART 3 EXECUTION

3.01 PIPELINE CONSTRUCTION

- A. Carefully protect all existing sewers, water lines, gas lines, sidewalks, curbs, gutters, pavements, electric lines, or other utilities or structures in the vicinity of the work from damage at all times. Wherever it is necessary for the proper accomplishment of the work to repair, remove, and/or replace any utility or structure, do so in accordance with the provisions set forth in the General and Supplementary Conditions and in Division 1, General Requirements.
- B. Before constructing or placing joints, demonstrate to the ENGINEER, by completing at least one sample joint, that the methods employed conform to the specifications and will provide a watertight joint if a watertight system is specified on the plans, and further that the workmen intended for use on this phase of the work are thoroughly familiar and experienced with the type of joint proposed.
- C. Before placing sewer pipe in position in the trench, carefully prepare the bottom and sides of the trench, and install any necessary bracing and sheeting as provided in Section 02220, Earthwork.
- D. Tightly stretch a mason's line or wire above the ground level, parallel to and directly above the axis of the pipe to be installed; this line is to be supported at intervals of no more than 50 feet on sewers being laid on a grade of 2 percent or more and not exceeding 25 feet for grades of less than 2 percent. Determine the exact line and grade for each section of pipe by measuring down from this

line to the invert of the pipe in place. Accurately place each pipe to the exact line and grade called for on the drawings. Furnish all labor and materials necessary for erecting batter boards. The use of laser beams will be allowed.

- E. Do not allow water to run or stand in the trench while pipe laying is in progress, before the joint has completely set, or before the trench has been backfilled. Do not at any time open up more trench than the available pumping facilities are able to dewater.
- F. Correct trench bottoms found to be unsuitable for foundations after pipe laying operations have been started, and bring them to exact line and grade with compacted earth as necessary.
- G. Carefully inspect each piece of pipe and special fitting before it is placed, and lay no defective pipe in the trench. Pipe laying shall proceed upgrade, starting at the lower end of the grade and with the bells or grooves upgrade.
- H. When bell and spigot pipe is utilized bell holes shall be excavated and be large enough to allow ample room for the pipe joints to be properly made. Cut bell holes out not more than 10 joints ahead of the pipe laying. Carefully grade the bottom of the trench between bell holes so that each pipe barrel will rest on a solid foundation for its entire length. Lay each pipe joint so as to form a close concentric joint with adjoining pipe and to avoid sudden offsets or inequalities in the flow line.
- I. Jointing operations shall follow pipe laying very closely; failure to comply with this provision will result in the ENGINEER stopping all pipe laying operations until jointing operations catch up.
- J. (For watertight installations only) After the joints have been completed, they shall be inspected, tested, and accepted by the ENGINEER before they can be covered. The CONTRACTOR shall immediately repair any leaks or defects discovered at any time after completion of the work. Take up any pipe that has been disturbed after joints were formed; clean and remake the joints; and relay the pipe at the CONTRACTOR'S expense. Carefully protect all pipe in place from damage until backfill operations are completed.
- K. Required trench widths, bedding materials, structural backfill materials, and compaction requirements for trench backfill and structural backfill for the various piping products called for in the plan documents are set forth on the project drawing detail sheet or are included and attached at the end of this section of specifications.
- L. Do not begin the backfilling of trenches until the pipe in place has been inspected and approved by the ENGINEER.
- M. As the work progresses, thoroughly clean the interior of all pipe in place. On small pipe, keep a swab or drag in the pipeline, and pull forward past each joint immediately after it has been made. After laying each line of pipe, carefully inspect it, and remove all earth, trash, rags, and other foreign matter from its interior.

3.02 JOINT CONSTRUCTION

- A. Butyl Mastic Joints: Apply butyl mastic material on spigot or tongue of pipe section installed prior to homing bell or groove end of next pipe section.
- B. Rubber "O" Ring and Profile Joints (For Watertight Installations with RCP): Rubber gaskets and the method of joint construction shall form a flexible watertight seal and shall be in strict compliance with the manufacturer's directions and requirements. Adequately lubricate the gaskets with lubricant provided for this purpose. Pipe joints shall be adequately and thoroughly homed until gasket has seated.
- C. O-Ring Rubber Gasket Joints for HDPE: O-ring rubber gasket joints shall be placed on the spigot end at least two corrugations of the spigot must insert into the bell end.
- D. O-Ring Rubber Gasket Joints for Polypropylene Pipe: O-ring rubber gasket joints shall be placed on the spigot end at least two corrugations of the spigot must insert into the bell end.
- E. Couplings for CMP: Install couplings in accordance with the manufacturer's specifications. Split collar couplings shall engage at least 2 full corrugations on each pipe section. Hugger type bands with rubber gaskets meeting ASTM D1056 are required for all CMP installations.

3.03 CONNECTIONS

- A. Make connections to all existing sewer lines as shown on the Plans or as directed by the ENGINEER. Make connections either by removing a section of the sewer from the existing line and inserting in the space a wye branch of the proper size or by constructing a manhole, junction box, regulator chamber, or other structure as shown on the Plans.
- B. Make connections to existing manholes or inlets by cutting a hole in the wall of the existing structure, inserting a length of pipe into the hole, filling around the pipe with concrete or mortar, and troweling the inside and outside surfaces of the joint to a neat finish. Shape or reshape the bottoms of manholes as necessary to fit the invert of the sewer pipe.

3.04 PIPE PROTECTION

- A. If pipe sewer has less than 1 foot of cover when completed, provide concrete protection as shown on the drawings or required by the ENGINEER. Place the protection in accordance with the Plans. CMP and HDPE installations must meet minimum cover as specified in Trench Details.

3.05 INSTALLATION OF STRUCTURES AND APPURTENANCES

- A. Construct inlets to the sizes, shapes, and dimensions shown on the drawings or as directed by the ENGINEER to meet special conditions. Excavate for structures

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in accordance with the applicable provisions of Section 02200, Earth and Rock Work.

- B. Where inlets are to be constructed in existing pavements and/or curbs and gutters, cut such pavements and/or curbs and gutters to a neat line with an air hammer or other suitable equipment, removing no more pavement and/or curb and gutter than is essential.
- C. Protect inlet foundations from damage by water and/or other causes. Place no concrete until the trench has been freed from water and/or mud, and maintain the trench in a reasonably dry condition during the progress of construction on structures.
- D. When the foundation has been prepared and is approved by the ENGINEER, construct the bottom to the required line and grade. After the bottom has been allowed to set for a period of no less than 24 hours, construct the inlet thereon, taking care to form the pipe or pipes into the walls at the required elevations.
- E. Set all castings accurately to line and grade in full cement mortar beds. Unless otherwise shown on the Plans and/or directed by the ENGINEER, set all grate frames no less than 1 inch below the normal grade of surrounding pavement and no less than 3 inches below the normal surface of unpaved areas; then slope the surrounding area to the grates on an approximate slope of 12:1. Mount frame in grout, secured to the top cone section to the elevation as indicated on the Plans.
- F. After the frames have time to set, but in no case less than 24 hours, the space around the drainage structure shall be backfilled and compacted to the required grade and as specified in Section 02200, Earthwork.
- G. Install headwalls and/or end sections as shown on the Plans and in accordance with the manufacturer's specifications.

3.06 SUBMITTALS AND FIELD QUALITY CONTROL

- A. The CONTRACTOR shall submit to the ENGINEER certification and test data to assure all pipes supplied will meet the following criteria:
- B. Pipe Materials: Manufacturer shall provide certification that all materials meet or exceed Part 2 Products section 2.02 Sewer Pipe Materials. Test data regarding pipe materials and or pipe strength may be requested by the ENGINEER or OWNER.
- C. Installation Deflection Requirements for HDPE and Polypropylene Pipe
 - 1. After the backfilling and the embankment are complete and no sooner than 7 days after the embankment is complete an independent testing firm shall be employed by the contractor to perform deflection and alignment tests on each line of pipe. For pipes 24-inch diameter and smaller this test shall be performed using a nine-vane mandrel with a diameter that is 5 percent less than the nominal inside diameter. The mandrel vanes shall be equally spaced

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around the center core. The CONTRACTOR at his own expense shall replace any line of pipe, through which the mandrel does not freely pass.

2. A mandrel test as prescribed above will also be required no earlier than 30 days prior to expiration of project warranty period, release of any performance bonds, or final acceptance by the OWNER. Any line of pipe, through which the mandrel does not freely pass, shall be replaced at the CONTRACTOR's expense.
3. Pipes larger than 30-inch diameter may be tested by a mandrel as described above or they may have their deflection and alignment checked by field measurements under the supervision of the engineer. If diameter measurements are taken in lieu of pulling a mandrel through the line, then each pipe shall be measured at the joint and at a distance of 1/3 the length from each end. The CONTRACTOR at his own expense shall replace any pipe. Large diameter pipes will be checked and approved 7 days after embankment is complete and no earlier than 30 days prior to final acceptance by OWNER, expiration of warranty period, or release of any performance bond.

3.07 CLEANUP

- A. After completing each section of sewer line, remove all debris and construction materials and equipment from the site of the work, grade and smooth over the surface on both sides of the line, and leave the entire right-of-way in a clean, neat, and serviceable condition.
- B. The interior of catch basins, area drains, and manholes shall be cleaned of debris and excess material, the grating or cover placed, and all unused material, equipment, tools, and debris removed from the area.

END OF SECTION

SECTION 02721

STORM SEWER UNDERGROUND DETENTION SYSTEM

PART 1 GENERAL

1.01 SUMMARY

- A. The work covered by this section shall consist of furnishing and installing a complete storm sewer underground detention system including storage chambers, connecting manifolds, inlet and discharge connections, storm water quality units and other structures, materials and fittings incidental to the construction of storm sewer underground detention systems.

1.02 RELATED SECTIONS

- A. Section 02200 – Earthwork
- B. Section 02235 – Crushed Stone and Dense Graded Aggregate (DGA)
- C. Section 02270 – Geotextiles
- D. Section 02370 – Erosion Prevention and Sediment Control
- E. Section 02720 – Storm Sewer
- F. Section 03301 – Cast-in-Place Concrete

1.03 PERFORMANCE CRITERIA

- A. Provide a complete storm sewer underground detention system complying with the following:
 - 1. Required storage: 0.7 acre-feet.
 - 2. Storage vertical and horizontal constraints: Provide required storage between elevations 984.2 and 989.2. Horizontal limits are confined to parking lot limits with clearances allowed for landscape areas (10 feet from curb lines) and future site lighting. Adjustments to the proposed site drainage system (storm piping connecting curb inlets to underground detention system) are allowed to accommodate the proposed detention system subject to approval by the Project Engineer. Any adjustments to the proposed site drainage system will be at no cost to the OWNER. See Item 3 below for additional constraints.
 - 3. Traffic loading: H-20. Allow minimum 18 inches from top of storage limits to final pavement elevations for pavement section and base stone. Stone backfill over storage chambers shall allow for stable subgrade for pavement section subject to loading indicated.
 - 4. Storage chambers shall have positive slope to drain to the discharge locations.

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5. Water quality components shall remove 80 percent TSS for the 3.7 acres of new impervious area.
6. Underground detention systems shall be designed and installed to include sufficient personnel access points to allow for visual inspection and maintenance of the entire system and also comply with all applicable laws and regulations (including OSHA) regarding confined space access and occupation.
7. Inlet connections to be coordinated with proposed parking lot storm sewer system. Discharge to be at 1 location with elevations as indicated on the Drawings.

1.04 DESIGN RESPONSIBILITIES

- A. The proposed underground detention system shall be designed by an engineer licensed in the Commonwealth of Kentucky based on the criteria listed above, these contract documents and applicable local, state and federal regulations. In these specifications, the underground detention system design engineer shall be noted as "system engineer."
- B. Drawings and details for the proposed underground detention system shall be stamped by the system engineer and submitted for review. Drawings and details shall include, but are not limited to, layout and dimensions, elevations, placement and connections details, installation and backfill requirements, materials used and compatibility with its various components and the proposed storm sewer system.

PART 2 PRODUCTS

2.01 GENERAL

- A. Selection of products for the storm sewer underground detention system shall be selected from manufacturer's available products and materials based on the underground detention system design requirements and these documents.
- B. Products shall be demonstrated to be compatible either by being part of a manufacturer's comprehensive system or through the system design and drawings.
- C. Products shall comply with manufacturer's standards and recommendations and as included in this section.
- D. Storage chambers and storage pipes shall be a minimum of 36 inches measured in the vertical dimension. Access shall be through standard (24 inches minimum diameter) frame and lid and access structure shall be a minimum of 48 inches interior diameter. Provide access steps.

2.02 STORAGE CHAMBER MATERIALS

- A. Reinforced Concrete Pipe (RCP). All circular concrete pipe shall be Class III (unless otherwise noted on plans or required for traffic loading as determined

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by system engineer) reinforced concrete pipe conforming to ASTM C76. Horizontal elliptical shall conform to C-507 Class HE-II, HE-III, or HE-IV as determined by system engineer.

- B. Corrugated Metal Pipe (CMP): Shall conform to the requirements of AASHTO M36 specifications for corrugated metal culvert pipe and AASHTO M 274 for aluminum coated steel pipe. Pipe gauges shall be based on pipe size and loading conditions.
- C. High Density Polyethylene Pipe (HDPE): Pipe and appurtenances shall be high density polyethylene conforming to the requirements of AASHTO M294 or ASTM F 894 as applicable. The pipe shall have a smooth interior and annular-corrugated exterior or profile wall pipe smooth interior for large diameter pipe. Polyethylene pipe materials shall be high-density polyethylene meeting ASTM D 3350 minimum cell classification 335420c. The use of reground materials is not allowed.
- D. High-Density Polyethylene (HDPE) Corrugated Wall Stormwater Collection Chambers: Chambers and appurtenances shall be approved by IAPMO Research and testing as accredited by ANSI, and be manufactured in an ISO 9001:2008 certified facility.
- E. Polypropylene (PP) Corrugated Wall Stormwater Collection Chambers: Chambers and appurtenances shall comply with ASTM F 2418 and ASTM F 2787.
- F. The CONTRACTOR shall require the manufacturer or supplier to furnish a certification that all materials furnished meet the above listed standards and materials specifications.

2.03 STORAGE CHAMBER ACCESSORIES

- A. Joint materials listed below are for water-tight joints. If the proposed system utilizes perforated pipe or the stone backfill for storage volume, water-tight joints are not required.
 - 1. Rubber "O" Ring or Profile Gasket Joints for RCP: The bell and spigot or the tongue and groove of the pipe shall be specially manufactured and prepared for the type of joint selected. The rubber gaskets shall meet the requirements of ASTM C443. Rubber gasket joints per ASTM C 443 will only be required in installations that require a watertight joint. RCP will be used on all watertight systems.
 - 2. Couplings for CMP: Couplings shall be of the same material and as the pipe and corrugated to match the corrugations. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Use "Hugger" type connecting bands with rubber "O" ring gaskets meeting ASTM D1056 for all CMP installations.
 - 3. O-Ring Rubber Gasket Joints for HDPE: Joints shall consist of a bell and spigot type joint with an O-ring rubber gasket meeting the requirements

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of ASTM F477. All HDPE installations will require a rubber gasket meeting the above requirements.

4. Joint materials for polypropylene (HDPE) corrugated wall stormwater collection chambers shall comply with manufacturer's recommendations.
5. Joint materials for polypropylene (PP) corrugated wall stormwater collection chambers shall comply with manufacturer's recommendations.

2.04 STRUCTURES AND APPURTENANCES

- A. Access Lids and Frames: Conforming to the requirements of ASTM A-48, Class 30. Machining of contact surfaces will be required so that covers and grates rest securely on the frames.
- B. Ladder Bars and or Steps: Shall be made of aluminum alloy conforming to Federal Specification QQ-A-200/8.

2.05 STORM WATER QUALITY UNITS

- A. Provide storm water quality units compatible with system selections and of materials complying with those used for storage chambers. Units shall have necessary access points to allow for ease of maintenance, cleaning and monitoring.
- B. Storm water quality units shall have documented results in meeting the Total Suspended Solids removal requirements. Supplier shall document suitability for the proposed use and ability to meet water quality removal requirements.

2.06 MISCELLANEOUS MATERIALS

- A. Stone Backfill and Bedding: Provide stone backfill and bedding as recommend by the manufacturer and system engineer. If stone backfill is used for storage volume, provide washed, open graded stone to provide void requirements for the system.
- B. Geotextile Filter Fabric: Where open graded stone is used for backfill, install geotextile filter fabric at stone/soil interface and around perforated piping. Geotextile fabric to comply with Kentucky Transportation Cabinet Standards and Specifications for Type II Fabric.

PART 3 EXECUTION

3.01 GENERAL

- A. Storm sewer underground detention system shall be installed per manufacturer's recommendations, the drawings and details prepared by the system engineer and the approved shop drawings. Installation of said system shall be carefully coordinated with the grading and drainage activities of the proposed parking lot, driveways or other features.

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- B. Coordinate locations and elevations of connections to the site drainage system prior to installation of the underground detention system. Report any conflicts to the project Engineer.
- C. No sediment laden storm water runoff will be allowed to discharge to the underground detention system. CONTRACTOR shall maintain erosion and sediment control measures in the contributing drainage watershed until all areas have been stabilized with vegetation or asphalt pavement.
- D. The underground detention system and storm water quality units will not be accepted as completed until all areas of new construction contributing storm water runoff to the system is complete and stabilized, the non-paved areas have established vegetation, all paved areas completed and the underground storage chambers and storm water quality unit have been cleaned of all sediment and debris to as-new condition.

3.02 INSTALLATION

- A. Install system according to approved system drawings and specifications.
- B. Excavate and fill area to provide proper elevations and slopes to comply with approved system drawings. Removal, placement and compaction of material to comply with Section 2200, Earth and Rock Work.
- C. Stage grading work to prevent intrusion of sediment laden storm water runoff from entering underground detention system.
- D. Install geotextile filter fabric at interface of open-graded stone and soil. Place geotextile filter fabric over opened-graded stone below pavement section or install dense-graded aggregate to “choke” voids in top of open-graded stone.

3.03 CONNECTION TO SITE DRAINAGE SYSTEM

- A. Use joint materials compatible with underground detention system and site drainage system for connecting the system pipes and structures.
- B. Connect proposed site drainage system only after measures are in place to prevent sediment laden storm water from discharging into the underground detention system.

3.04 SYSTEM PROTECTION

- A. Provide adequate cover and protect of installed materials and products. Add stone cover if required to accommodate construction traffic. Damage products and/or materials will be replaced. Replacement of damaged materials is the sole responsibility of the contractor.

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3.05 SUBMITTALS AND FIELD QUALITY CONTROL

- A. The CONTRACTOR shall submit to the ENGINEER certification and test data to assure all pipes supplied will meet the following criteria:
 - 1. Storage Chamber Materials: Manufacturer shall provide certification that all materials meet or exceed Part 2 Products section 2.02 Storage Chamber Materials. Test data regarding pipe materials and or pipe strength may be requested by the ENGINEER or OWNER.
 - 2. Installation: CONTRACTOR shall submit to the ENGINEER a certification from the system engineer that the system has been installed in compliance with the approved system design.

3.06 CLEANUP

- A. After completion of system, remove all debris and construction materials from the area.
- B. The interior of storage chambers and storm water quality units shall be cleaned for all sediment, trash and other materials. Filtering medium used in the storm water quality units will be replaced or installed initially after construction in the contributing watershed has been completed.

END OF SECTION

SECTION 02900

LANDSCAPING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Special Conditions, apply to work of this Section.

1.02 DESCRIPTION OF WORK

- A. This section includes furnishing labor, materials, equipment and related items required to complete all landscape plantings as indicated on the Drawings and Specifications as specified, including but not limited to the following:

- 1. Spreading of topsoil.
- 2. Furnishing and planting trees and shrubs.
- 3. Planting maintenance.

- B. Refer to Division 2, Section 02200 Earthwork for topsoil stripping, excavation, filling and subgrade preparation.

- C. Refer to Division 2, Section 02930, Sodding and Seeding for preparation of lawns.

1.03 QUALITY ASSURANCE

- A. Subcontract landscape work to a single firm specializing in landscape plantings and having completed at least five (5) similar projects in the past 3 years. The landscape subcontractor shall furnish evidence of his experience upon request.

- B. General: Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.

- C. Substitutions: Substitutions will be permitted after Award of Contract only upon submission of proof in writing that a plant is not obtainable and authorization by the OWNER for use of the nearest equivalent obtainable size or variety of plant having the same essential characteristics.

- D. Analysis and Standards: Packaged products shall bear manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.

- E. Sources: Notice of sources of plant materials shall accompany the bid for this project and be listed on the Unit Price Sheet under Sources of Materials. All plant materials for this project must come from nurseries located in Zones 5a to

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6a as established in the most recent United States Department of Agriculture (USDA) Plant Hardiness Zone Chart.

- F. Topsoil: The CONTRACTOR shall be required to take representative soil samples from the area from which topsoil shall be stripped for this project. Samples shall be taken over the entire area in a manner as recommended by the testing agency or laboratory. Samples shall be forwarded to the ENGINEER'S office for evaluation. Additional samples will be forwarded for testing by a State or commercial soil testing laboratory using methods approved by the Association of Official Agricultural Chemist or the State Agricultural Experiment Station. The CONTRACTOR shall include this in his bid and shall pay for all tests required.
- G. Inspection of Plants: The ENGINEER may inspect trees and shrubs either at place of growth or at landscape contractor's nursery before the plants are delivered to the site for compliance with requirements for genus, species, variety, size and quality. The ENGINEER retains right to further inspect trees and shrubs for size and condition of balls and root systems, insects, injuries and latent defects and to reject unsatisfactory or defective material at any time during progress of work.

1.04 SUBMITTALS

- A. Certification. Submit certificates of inspection as required by governmental authorities. Submit manufacturer's or vendors certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.
 - 1. Submit seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight and percentages of purity, germination and weed seed for each grass seed species.
- B. Maintenance Instructions: Submit three (3) sets of typewritten instructions recommending procedures to be established by OWNER for maintenance of landscape work for one (1) full year. Submit prior to final acceptance.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.
- B. Burlap: Synthetic or treated burlap shall not be used on any tree or shrub scheduled for installation on this project. Any plant ball found to be covered with such burlap shall be removed from the site and replaced with acceptable material.
- C. Trees and Shrubs: Provide freshly dug trees and shrubs. Do not prune prior to delivery unless otherwise approved by OWNER. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches or destroy natural

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shape. Provide protective covering during delivery. Do not drop balled and burlapped stock during delivery.

- D. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage and keep roots moist by covering with mulch, burlap or other acceptable means of retaining moisture.

1.06 JOB CONDITIONS

- A. Proceed with and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required.
- B. Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- C. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions or obstructions, notify OWNER before planting. Refer to planting notes and Part 3, Execution for more restrictive requirements.
- D. Time of Planting: Planting operations shall be conducted under favorable weather conditions during the planting season extending from October 1 to December 15 or March 1 to May 15. At the option of and with full responsibility for the plantings, the CONTRACTOR may conduct limited planting operations under unseasonable weather conditions without additional compensation or any waiver of the guarantee if requested in writing by the CONTRACTOR and approved by the OWNER.
- E. Coordination with Lawns: Plant trees and shrubs after final grades are established and prior to planting of lawns unless otherwise acceptable to the OWNER. If planting of trees and shrubs occurs after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations.

1.07 PLANT GUARANTEE AND REPLACEMENT

- A. Guarantee: **Plants shall be guaranteed for the duration of 1 full year after the formal acceptance of the planting by the OWNER and shall be alive and in satisfactory growth at the end of the guarantee period.** The OWNER shall be responsible for all maintenance necessary to keep the plants alive and healthy between the time the plantings are accepted and the end of the guarantee period. The basic needs of the plants during this period are for adequate water and protection from insects and other similar pests.

- B. The CONTRACTOR shall check the plantings regularly. Should the CONTRACTOR find the plant material is not receiving the proper maintenance at any time prior to the end of the guarantee period, he should advise the OWNER immediately in writing so corrective measures may be initiated.
- C. Replacement: At the end of the guarantee period, inspection will be made by the OWNER upon receipt of written or verbal notice requesting such inspection submitted by the CONTRACTOR at least ten (10) days prior to the anticipated date. Any plant required under this Contract that is dead or not satisfactory in growth as determined by the OWNER shall be removed from the site. These, and any plants missing due to the CONTRACTOR's negligence, shall be replaced as soon as conditions permit but during the normal planting season.
- D. Any plant that has die-back or otherwise loses over 30 percent or more of its branches, excluding branches removed by trimming required under "Pruning and Repair", as existing and living prior to removal from the nursery field shall be rejected.
- E. The CONTRACTOR shall be responsible for removing dead or diseased plants from the site during the guarantee period when notified by the OWNER of dead materials. Replacements shall be made only at the end of the guarantee period as described herein.
- F. Material and Operations: All replacements shall be plants of the same kind and size as specified in the Plant List. They shall be furnished and planted as specified under "New Planting", the cost of which shall be borne by the CONTRACTOR.
- G. Replaced plants are not subject to a full one (1) year guarantee, but replacements must be alive and vigorous when inspected after planting and must leaf out fully in the spring if replacements are made while the plant is dormant.
- H. Cost of Plant Replacement: **A sum sufficient to cover the estimated cost of possible replacements, including materials and labor, shall be retained by the OWNER and paid to the CONTRACTOR at the end of the guarantee period after all replacements have been made and approved.** The minimum retainage shall be 7 percent of the total cost of planting. A larger percentage shall be withheld if the condition of the plantings indicate the potential value of replacements will exceed the minimum retainage.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Existing topsoil shall be stripped and stockpiled under Section 02200, Earthwork. Should an adequate amount of topsoil not be available within the stockpile to complete the specified work, the CONTRACTOR shall furnish at his own expense sufficient topsoil of the quality described herein to complete the work.

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1. The CONTRACTOR shall furnish a soil analysis and reports as performed by the Agricultural Extension Service or commercial testing laboratory for any areas from which topsoil is to be stripped or used for this project. The soil shall be tested for nutritional content, organic matter and texture. The CONTRACTOR shall incorporate necessary additives in proper quantities as recommended in the soil analysis, or as necessary to bring the soils up to acceptable standards.
 2. Topsoil shall be original surface loam obtained from well-drained areas from which topsoil has not been removed previously, either by erosion, clearing and removal of trees or mechanical means. It shall not contain subsoil material and shall be clean and free of clay lumps, roots, stones or similar substances more than 1 inch in diameter, debris, discarded fragments of building materials or weeds and weed seeds. Topsoil shall be classified as a loam, silt loam, clay loam or a combination thereof, as determined from the Bureau of Plant Industry, Soils and Agricultural Engineering, U.S.D.A. Triangular soil texture chart. It shall be rich, friable loam containing not less than 3 percent, nor more than 10 percent, by weight of organic matter as determined by loss on ignition of oven dried samples. The ignition test shall be performed on samples which have been thoroughly oven dried at a temperature of 221 degrees Fahrenheit.
- B. Commercial fertilizer shall be complete fertilizer, 10-10-10, or as specified and shall conform to the applicable state fertilizer laws. Fertilizer shall be uniform in composition, dry and free-flowing and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged will not be accepted.
- C. Herbicide shall be an approved commercial grade pre-emergent herbicide used in soil preparation. The particular type of herbicide shall be certified safe for the plants specified in the Plant List or for the plants around which the herbicide shall be used.
- D. Lime shall be ground limestone (Dolomite) containing not less than 85 percent of total carbonates and shall be ground to a fineness that 50 percent will pass through a 100-mesh sieve and 90 percent will pass through a 20-mesh sieve. Coarser material shall be acceptable provided that specified rates of application are increased proportionally on the basis of quantities passing the 100-mesh sieve.
- E. Peat shall be a domestic product consisting of partially decomposed vegetable matter of natural occurrence. It shall be brown, clean, low in content of mineral and woody materials, mildly acid and granulated or shredded.
- F. Aluminum sulfate shall be a commercially available agricultural chemical and shall be furnished under the manufacturer's guaranteed statement of analysis giving percentage of active ingredients.

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- G. Ammonium nitrate shall be a commercially available agricultural chemical and shall be furnished under the manufacturer's guaranteed statement of analysis giving percentage of active ingredients.
- H. Bark mulch shall be an approved, clean, sterilized pine or fir bark, chipped to a uniform size not to exceed a length of 2 inches or a thickness of 1/2-inch. It shall be decay and fire resistant, non-toxic to plant material and shall have a maximum water content of 18 percent and an average weight of 17 to 20 pounds per cubic foot. The bark shall be screened to remove sawdust and fine shavings and shall contain no hardwood or sapwood.
- I. Water: The CONTRACTOR shall provide, at no additional expense, an adequate supply of water to meet the needs of this Contract. The CONTRACTOR shall furnish all necessary hoses, equipment, attachments and accessories for the adequate irrigation of planted areas as may be required to complete the work as specified.
- J. Watering plants to be installed in tree planting pits shall be perforated PVC and ADS corrugated pipe in individual lengths as required for the specific ball sizes as detailed in the Plant List.
- K. French drain shall be polyethylene perforated drain pipe 4 inches diameter, corrugated and wrapped with high-modulus geotextile filter fabric meeting or exceeding ASTM D1248 with Class C pigments with a minimum of 4 percent black color concentrate for ultraviolet protection.
- L. Materials for Staking, Guying and Wrapping:
 - 1. Stakes shall be 7 feet to 8 feet long, heavy duty "T" section fence posts, painted a dark brown.
 - 2. Wire for fastening trees to stakes shall be a landscape rope fabric.
- M. Plant Materials (See Plant List)
 - 1. Nomenclature: The names of plants required under this Contract conform to those given in Standardized Plant Names, 1942 Edition, prepared by the American Joint Committee on Horticultural Nomenclature. Names of varieties not included therein conform generally with names accepted in the nursery trade.
 - 2. Quantities: Quantities necessary to complete the planting as shown on the Drawings and located thereon shall be furnished.
 - 3. Quality and Size: Plants shall have a habit of growth that is normal for the species and shall be sound, healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions or disfigurement. All plants shall equal or exceed the measurements specified in the Plant List which are minimum acceptable sizes. They shall be measured before pruning with branches

in normal position. Any necessary pruning shall be done at the time of planting (see "Pruning and Repairs") requirements for the measurement, branching, grading, quality, balling and burlapping of plants in the Plant List generally follow or exceed the Code of Standards currently recommended by the American Association of Nurserymen, Inc. in the American Standard for Nursery Stock ANSI Z60.1.

4. Type of Protection to Roots:

- a. Balled and Burlapped Plants: Plants shall be balled and burlapped unless otherwise noted on the Drawings. They shall be dug with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding roots system necessary for full recovery of the plant and of minimum sizes shown on the Plant List. Balls shall be firmly wrapped with untreated burlap or similar material and bound with twine, cord or wire mesh. Where necessary to prevent breaking or cracking of the ball during the process of planting, the ball may be secured to a platform.
- b. Container-grown Plants: Designated for "containers" in the Plant List shall have been grown in containers such as pots, cans, tubs or boxes and have sufficient roots to hold earth together intact after removal without being rootbound. Container size shall be in proportion to plant size and in accordance with the AAN Standards. The OWNER shall have the option to reject container-grown material if the growing media is too porous to hold adequate water for the plant's survival without watering more than once a week.
- c. Protection after Delivery: The balls of plants which cannot be planted immediately upon delivery shall be covered with moist soil or mulch or provided with other protection from drying winds and sun. All plants shall be watered as necessary until planted.

- O. Anti-Desiccant: Emulsion type, film-forming agent designed to permit transpiration but retard excessive loss of moisture from plants. Deliver in manufacturer's fully identified containers and mix in accordance with manufacturer's instructions.

PART 3 EXECUTION

3.01 PREPARATION

- A. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations and outline areas and secure OWNER's acceptance before start of planting work. Make minor adjustments as may be requested.

3.02 OBSTRUCTION BELOW GROUND OR OVERHEAD

- A. It is not contemplated that planting shall be done where the depth of soil over underground construction, obstructions or rock is insufficient to accommodate

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the roots or where pockets in rock or impervious soil will require drainage. Where such conditions are encountered in excavation of planting areas and where the stone, boulders or other obstructions cannot be broken and removed by hand methods in the course of digging plant pits of the usual size and where trees to be planted are found to be under overhead wires, other locations for the planting may be designated by the OWNER.

- B. Removal of rock or other underground obstruction, relocation of construction and provisions of drainage for planting areas shall be done only as approved by the OWNER.
- C. Should the landscape contractor encounter unsatisfactory surface or subsurface drainage conditions, soil depth, latent soils, hard pan, steam or other utility lines or any other conditions that will jeopardize the health and vigor of the plantings, he must advise the OWNER in writing of the conditions prior to installing the plants. Otherwise, the landscape contractor warrants that the planting areas are suitable for proper growth and development of the plants to be installed.

3.03 NEW PLANTING

- A. Layout: New planting shall be located where shown on the Drawings except where obstructions below ground or overhead are encountered or where changes have been made in the construction. Necessary adjustments shall be made only after approval by the OWNER. No planting, with the exception of ground cover, espalier plants and hedge, shall be placed closer than 2 feet to pavement or structures. The landscape contractor shall be responsible for staking and layout of plantings on this project. The OWNER shall be advised when stakes are in place and ready for inspection on various planting areas. All layout work shall be inspected and approved by the OWNER prior to opening any plant pits.
- B. Planting Pits: Reasonable care shall be exercised to have pits dug and soil prepared prior to moving plants to their respective locations for planting to insure that they will not be unnecessarily exposed to drying elements or to physical damage. However, no open holes shall be left overnight or unmarked or unattended.
 - 1. Before planting any area, fill a representative sample of the excavated planting pits and beds with water to a depth of 6 inches or more as required to verify if the subsoil is permeable enough to percolate satisfactorily and drain adequately after plants are installed. Advise the OWNER in writing if any problems are anticipated regarding excessive ground water or unsuitable percolation.
- C. Soil Preparation:
 - 1. Soil use in planting shall be topsoil as previously specified and shall be amended in accord with the soil test results. Newly prepared topsoil backfill will be required in all planting areas unless specifically exempted by notes on the Drawings.

2. Topsoil shall be spread to a minimum depth of 15 inches in all shrub planting beds and ground cover beds.
 3. Width of shrub beds shall be equal to 3 times the width of the root ball.
 4. Fertilizer shall be placed in each tree or shrub planting pit at a depth of 6 inches to 8 inches when the plant is set in place. The exact quantity and distribution shall be in strict accordance with the soil test results.
 5. Additional fertilization may be required prior to acceptance of plantings or individual plants that are visibly in a weakened or stressful condition.
- D. Excess excavated soil shall be disposed of by the CONTRACTOR.
- E. Setting Plants: Unless otherwise specified, all plants shall be planted in pits, centered and set to such depth that the finished grade level at the plant after settlement will be the same as that at which the plant was grown.
1. Prior to setting container-grown plants, make four to five cuts 1/2-inch to 1 inch deep, top to bottom on rootbound mass to loosen roots.
 2. Plants shall be planted upright and faced to give the best appearance or relationship to adjacent structures.
 3. All cords and bindings shall be cut from plants prior to planting. The top one-third of burlap shall be removed from the root ball prior to backfilling. All broken or frayed roots shall be cut off cleanly.
 4. Topsoil shall be placed and compacted carefully to avoid injury to roots and to fill all voids. When the hole is nearly filled, add water as necessary to allow it to soak away. Fill the hole to finished grade. After the ground settles, additional soil shall be filled in, to the level of the finished grade.
- F. Watering pipes, as shown on the Details, shall be set adjacent to each tree ball the time of planting (pipes not required with shrubs) and backfilled with washed river gravel 1/4-inch to 3/8-inch diameter.
- G. Guying and Staking: Trees shall be supported immediately after planting. All trees shall be staked as detailed and shown on the Drawings. Wires shall be encased in hose to prevent direct contact with the bark of the tree and shall be placed around the trunk in a single loop. Wires shall be tightened and kept taut by the use of turnbuckles. Stakes shall be equally spaced about each tree and shall be driven vertically into the ground to a depth of about 2 feet in such a manner as not to injure the ball or roots. Trees shall be fastened to each stake at a height of about 5 feet by means of 2 strands of wire. Stakes shall be uniform in length and placed according to the type, the type, size and location of the tree as follows:
1. Shade trees up to 1-3/4 inches in caliper shall be anchored with one (1) 7 foot or 8 foot diagonal stake and guy wires per Planting Detail.

2. Shade trees 2 inches in caliper and larger shall be anchored with two (2) equally spaced 7 foot or 8 foot stake and guy wires per Planting.
 3. Ornamental trees (conifers) to 6 feet in height, anchor with one (1) 7 foot or 8 foot diagonal stake per Planting Detail.
 4. Ornamental trees (conifers) over 6 feet in height, anchor with two (2) equally spaced 7 foot or 8 foot stakes and guy wires per Planting Detail.
 5. Ornamental trees (deciduous and broadleaf evergreen) to 2-1/2 inches in caliper, anchor with one (1) 7 foot or 8 foot diagonal stake per Planting Detail.
 6. The CONTRACTOR shall remove the stakes and wires one (1) year after the trees have been planted, unless otherwise directed by the OWNER.
- H. Wrapping: Promptly after planting, the trunks of all trees, except conifers, shall be wrapped spirally from the groundline to the height of the second branches. Overlap half of each spiral to form a double wrapping. All wrapping shall be neat and snug, and the material shall be held in place by a suitable cord.
- I. Herbicide Treatment: All tree saucers and ground cover beds shall be treated after plants have been installed with an approved pre-emergent herbicide material applied in strict conformance with rates and methods recommended by the manufacturer. Plants installed during the fall planting seasons shall be treated with the approved herbicide during the first week of April of the following year. Plants installed in the spring shall be treated with the approved herbicide immediately after installation. Herbicide shall be cleared by the manufacturer as safe for use around plants itemized in the Plant List.
- J. Mulching: Tree and shrub beds shall be mulched as noted in the Planting Details or as shown on the Drawings. This mulch shall cover the entire bed area and shall have a neat and well-defined edge between lawn area and shrub bed. Trees in lawn areas with individual saucers shall be mulched with 2 inches of bark mulch.
- K. Pruning and Repair: All pruning and repair work must be completed within a ten (10) day period after planting. The amount of pruning included under the work of this Section shall be limited to the minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots as a result of transplanting operations.
1. Trees and some shrubs will be pruned back after planting to maintain a balance between the reduced root system and the branches. Care will be taken in this work to insure that the plants preserve their natural form. Branches shall be pruned to reduce total leaf area by 20 percent on all trees 3 inch in caliper and larger and on all deciduous and broadleaf evergreen shrubs 36 inches in height or spread or larger.

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2. The natural form of newly planted trees and shrubs will be preserved in pruning by the removal of branches and/or part of branches at different lengths in accord with standard horticulture practices and as directed by the OWNER. Pruning will always be done with a clean cut in living wood without bruising or tearing of bark and without leaving any stubs which would prevent the wound from healing over. Horizontal cuts may cause rot and will be avoided. Larger cuts, 3/4-inch or more in diameter, will be painted with 2 coats of orange shellac.

3.05 CLEAN-UP

- A. Clean-up: Any soil, bark, peat or similar material which has been brought onto paved areas within or outside the construction area by hauling operations or otherwise shall be removed promptly, keeping these areas clean at all times. Upon completion of the planting, all excess soil, stones and debris which have not been cleaned up shall be removed from the site or disposed of as directed by the OWNER. All planting areas shall be prepared for final inspection.
- B. Other Work: The CONTRACTOR shall be responsible for the repair of any damage caused by his activities or those of his subcontractors within or outside the construction area such as the storage of topsoil or other materials, operation of equipment and other usages. Such repair operations shall include any regarding, sodding or other work necessary to restore damaged work or areas to a condition acceptable to the OWNER.

3.06 MAINTENANCE

- A. Maintenance shall begin immediately following the last operation of installation for each portion of lawn and for each plant and shall continue until installation of planting is complete and the planting is formally accepted by the OWNER. Maintenance shall include mowing, watering, weeding, cultivating, mulching, removal of dead material, resetting plants to proper grades or upright position and restoration of the planting saucer and other necessary operations. Any damage resulting from planting operations shall be repaired promptly.
- B. The OWNER shall be responsible for all required maintenance after the planting is formally accepted.

3.07 INSPECTION FOR ACCEPTANCE

- A. Inspection of the work of this Section to determine completion of the CONTRACTOR's work, exclusive of the possible guarantee replacement of plants, shall be made by the OWNER upon receipt of written notice requesting such inspection submitted by the CONTRACTOR at least 10 days prior to the anticipated date of inspection.
- B. Acceptance: After inspection, the CONTRACTOR will be notified in writing by the OWNER of acceptance of all work of this Section, exclusive of the possible replacement of plants subject to guarantee or the CONTRACTOR will be notified in writing if there are any deficiencies from the requirements for completion of the work. Replacement, maintenance and repair work remaining to be done

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shall be subject to reinspection before acceptance. **All plants shall be alive and in a healthy and vigorous condition at the time of the final inspection.**

END OF SECTION

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SECTION 02930
SODDING AND SEEDING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required to perform sodding and seeding as shown on the Contract Drawings and as specified herein.
- B. All areas disturbed by construction operations shall receive a protective cover of vegetation. The work shall consist of preparing the area for treatment, furnishing and placing soil amendments, fertilizer, sod, seed, inoculants, mulch and plantings as specified in the designated areas.

1.02 RELATED WORK

- A. Special requirements for materials and equipment are given in the Special Conditions of the Contract.
- B. Special sequence or schedule requirements (if any) are specified in Section 01010 - Summary of Work.

1.03 QUALIFICATIONS

- A. The work shall be done by a provider who is experienced, reputable, and qualified in the tasks required.

1.04 SUBMITTALS

- A. Shop Drawings and other items needed to establish compliance with the Drawings and these Specifications shall be submitted to the ENGINEER in accordance with the Special Conditions of the Contract.
- B. Where fertilizer is furnished from bulk storage, the CONTRACTOR shall furnish a supplier's certification of analysis and weight. When required by the Contract, a representative sample of the fertilizer shall be furnished the OWNER for chemical analysis.

1.05 WARRANTY

- A. Refer to Division 0 and 1 for warranty requirements.

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PART 2 PRODUCTS

2.01 SOD

- A. The sod to be used shall be Kentucky Bluegrass comparatively free from weeds or heavy root structure, cut in strips of 10 inches to 12 inches wide, 18 inches to 24 inches long, with a thickness of 1 1/2 inches to 2 inches.

2.02 SEED

- A. All seed shall conform to the current rules and regulations of the state where it is being used and from the latest crop available. It shall meet or exceed the standards for purity and germination listed herein.
- B. Seed shall be labeled in accordance with the state laws and the U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect on the date of invitations for bids. Bag tag figures will be evidence of purity and germination. No seed will be accepted with a date of test of more than 9 months prior to the date of delivery to the site.
- C. The seed for use on this project shall be of the type as listed below with the listed germination and purity qualifications.

| <u>Species</u> | <u>% of Total Mix</u> |
|---|-----------------------|
| Hard fescue (<u>Festuca longifolia</u>) | 35 |
| Tall fescue (KY-31) (<u>Festuca arundinacea</u>) | 30 |
| Ryegrass (<u>Lolium perenne</u>) | 10 |
| Weeping red fescue (<u>Festuca rubra</u>) | 20 |

2.03 FERTILIZER

- A. Unless otherwise specified the fertilizer shall be a commercial grade fertilizer or as specified herein. The fertilizer shall meet the standard for grade and quality specified by state law.

2.04 INOCULANTS

- A. The inoculant for treating legume seeds shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species and shall not be used later than the date indicated on the container or as otherwise specified. A mixing medium, as recommended by the manufacturer, shall be used to bond the inoculant to the seed. Two times the amount of the inoculant recommended by the manufacturer shall be used, except when seed is applied by use of hydraulic seeder, in which case 4 times the amount of inoculant recommended

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by the manufacturer shall be used. Seed shall be sown within 24 hours of treatment and shall not remain in the hydraulic seeder longer than 4 hours.

2.05 SOIL AMENDMENTS

- A. Lime shall consist of standard ground agricultural limestone, or equal. Standard ground agricultural limestone is defined as ground limestone meeting current requirements of the State Department of Agriculture. Agricultural lime or other needed soil amendments will be uniformly applied at the rate specified herein.

2.06 ASPHALT EMULSION

- A. Asphalt emulsion shall conform to the requirements of ASTM D 977-80, "Emulsified Asphalt." The emulsified asphalt may be rapid, medium, or slow cure materials.

2.07 STRAW MULCH MATERIALS

- A. Straw mulch materials shall consist of wheat, oat, or rye straw, hay, grass clippings cut from any native grasses or other plants acceptable to the ENGINEER. The mulch material shall be air dry, reasonably light in color, and shall not be musty, moldy, caked, or otherwise of low quality. The use of mulch that contains noxious weeds will not be permitted. The CONTRACTOR shall provide a method satisfactory to the ENGINEER for determining weight of mulch furnished.

2.08 OTHER MULCH MATERIALS

- A. Mulching materials, such as wood cellulose fiber mulch, emulsion type, synthetic fiber mulch, netting, mesh, and other mulching materials that may be required for specialized locations and conditions, when specified, must be accompanied by the manufacturer's recommendations for methods of application.

PART 3 EXECUTION

3.01 EXTENT

A. Lump Sum Contracts

1. Sodding

- a. All sodded areas within the construction site steeper than 1 foot vertical to 4 feet horizontal, and berms less than 4 feet wide at all structures shall be sodded, unless otherwise shown on the Drawings or herein specified.

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2. Seeding

- a. Except for areas occupied by structures, roadways, walkways, and sodded areas specified above, the entire area disturbed by construction operations shall be seeded.

3.02 SOIL PREPARATION

- A. All areas to be seeded or sodded shall be thoroughly cleaned, removing all debris of whatever nature. After the area has been cleaned, the soil for seeding and sodding shall be prepared as follows:
 1. Loosen the soil to a depth of not less than 4 inches.
 2. Work the soil until it is in good condition, raking with hand rake to complete the soil preparation and make final finished grade.
 3. Broadcast 15 pounds of 8-8-8 or better fertilizer on each 1,000 square feet of area (for sodded areas only).
 4. Rake area to receive sod, to spread fertilizer and work into soil.
 5. On areas to be seeded, the raking in of fertilizer may be done concurrently with raking in of seed as hereinafter specified.

3.03 SODDING

- A. The timing of resodding shall be controlled by the ENGINEER. Ground shall be prepared and fertilized as previously specified under Article 3.02 of this Specification Section. In small patches, supplying of 3 inches of topsoil and raking may be substituted for disking.
- B. The strips of sod are to be laid so the joints will be broken. After the sod has been laid, it is to be watered thoroughly then rolled with a roller weighing 300 to 400 pounds, supplemented by hand tamping of sections inaccessible by roller.
- C. After the sod has been put down, as described above, each piece is to have a minimum of 2 stakes to hold it in place, the stakes to be 1/2 inch square, 10 inches long, and driven into the ground with 2 inches of the stake left above the sod.
- D. Sod shall be kept moist by watering for at least one month or until the Contract is completed and the facilities accepted by the OWNER for operation.

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3.04 SEEDING

A. Temporary Cover (All Areas)

1. This item shall consist of seeding a temporary cover of grass, or grass and small grain, on areas disturbed on the construction site which will not be redisturbed within a 60 day period. The determination of the area to be temporarily seeded and the time of seeding shall be controlled by the ENGINEER.
2. The seed mixtures to be used for temporary cover will be governed by the time of year the seeding is accomplished. The mixtures and time of seeding shall be as follows:
 - a. Time of Seeding - 2/15 to 6/1
 - (1) Rye 1-1/2 bushels and ryegrass 25 pounds per acre; or tall fescue 30 pounds and ryegrass 20 pounds per acre.
 - b. Time of Seeding - 6/2 to 8/15
 - (1) Tall fescue 30 pounds and ryegrass 20 pounds per acre; or, spring oats 2 bushels and ryegrass 30 pounds per acre.
 - c. Time of Seeding - 8/16 to 2/14
 - (1) Rye 2 bushels and ryegrass 20 pounds per acre; or, tall fescue 30 pounds and ryegrass 20 pounds per acre.
 - d. Lime will not be required for temporary seeding.
 - e. Fertilize at the rate of 400 pounds per acre of 10-10-10 fertilizer, or equivalent, broadcast uniformly on the area to be seeded.
 - f. All seed shall be broadcast evenly over the area to be seeded and cultipacked or otherwise pressed into the soil. Seed and fertilizer may be mixed together and applied after the seed bed has been prepared.
 - g. Mulch for temporary seeding will not be required except on those areas, in the ENGINEER'S opinion, too steep to hold the seed without protective cover.

B. Seeding (Permanent Cover)

1. This item consists of seeding all areas disturbed during construction. All grading and/or filling of rills and gullies to a cross section acceptable to the ENGINEER shall be included in the seed bed preparation.
 - a. Seed mix as indicated in paragraph 2.02, Seed.

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3.05 MULCHING

- A. Mulch materials, meeting the requirements of Part 2 of this Specification Section, shall be applied at the rate of 2 tons per acre.
- B. The mulch shall be stabilized by running a "weighted" disk harrow with disks set straight, over the area on the contour, after the mulch has been applied, so as to imbed or press a part of the straw into the soil sufficiently to hold it in place. On earth embankments or areas too steep for use of mechanized equipment, the mulch shall be held in place by using small stakes and twine or other method acceptable to the ENGINEER. The blown-on bituminous-treated straw mulch method of placing the mulch, as specified in Section 212.06.03, Method 2 of the Standard Specifications for Road and Bridge Construction of the Kentucky Transportation Cabinet Department of Highways, will be an acceptable placing method.
- C. Mesh, netting or other special protective cover shall be at locations as shown on the Drawings and shall be installed according to the manufacturer's recommendations.

END OF SECTION

SECTION 03301

**CAST-IN PLACE CONCRETE
(MINOR STRUCTURES)**

PART 1 GENERAL

1.01 SUMMARY

- A. This specification delineates the requirements for cast-in place concrete for minor structures including concrete kickers for pipe blocking, sidewalks, collars, manholes, manhole bottoms, pipe cradles, retaining walls, curbs, and other areas where small quantities of concrete are required.

1.02 SCOPE OF WORK

- A. Provide all labor, material, equipment and services to complete all cast-in-place concrete work required by the Project as shown on the Drawings or specified herein.

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

| | |
|------------------|---|
| ASTM A 185 | Specification for Steel, Welded Wire, Fabric, Plain, for Concrete Reinforcement |
| ASTM A 497 | Specification for Welded Deformed Steel Wire Fabric for Concrete Reinforcement |
| ASTM A 615/A615M | Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement |
| ASTM A 616/A616M | Specification for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement |
| ASTM A 617/A617M | Specification for Axle-Steel Deformed and Plain End Bars for Concrete Reinforcement |
| ASTM A 706/A706M | Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement |
| ASTM C 33 | Specification for Concrete Aggregates |
| ASTM C 150 | Specification for Portland Cement |

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ASTM C 260 Specification for Air-Entraining Admixtures for Concrete

ASTM C 494 Specification for Chemical Admixtures for Concrete

1.04 SUBMITTALS

- A. Copies of all materials required to establish compliance with these Specifications shall be submitted in accordance with the provisions of the General Conditions.

1.05 QUALITY ASSURANCE

- A. All work shall be performed to secure for the entire job homogeneous concrete having required strength, durability and weathering resistance, without planes of weakness and other structural defects and free of pronounced honeycombs, air pockets, voids, projections, offsets of plane and other defacements on exposed surfaces.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Do not deliver ready-mixed concrete to job site until ready for placement.
- B. All materials used for on-site mixed concrete shall be kept clean and free from all foreign matter during transportation and handling and kept separate until measured and placed in the mixer.
- C. Store concrete aggregates to prevent contamination or segregation. Store reinforcement of different sizes and shapes in separate piles or racks raised above the ground to avoid excessive rusting.
- D. Protect from contaminants such as grease, oil and dirt. Provide for accurate identification after bundles have been broken and tags removed.

1.07 PROJECT/SITE CONDITIONS

A. Cold Weather

Provide and maintain 50 degrees Fahrenheit minimum concrete temperature. Do not place concrete when ambient temperature is below 40 degrees Fahrenheit. Cover concrete and provide with a source of heat sufficient to maintain 50 degrees Fahrenheit minimum while curing.

B. Hot Weather

- 1. Concrete temperature from initial mixing through final cure shall not exceed 90 degrees Fahrenheit. Cool ingredients before mixing, or substitute chip ice for part of required mixing water or use other suitable means to control concrete temperature to prevent rapid drying of newly placed concrete. Shade the fresh concrete and start curing as soon as the surface is sufficiently hard to permit curing without damage.

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PART 2 PRODUCTS

2.01 CONCRETE

A. Mix Design

The concrete mix shall conform to the requirements of the following table according to the class of concrete required. The number in the "Class" column refers to the 28-day compressive strength of the concrete in pounds per square inch (psi).

| Class | Minimum Cement Content (Lbs./Cu. Yd.) | *Maximum Slump (Inches) |
|-------|---------------------------------------|-------------------------|
| 3000 | 470 | 3 to 4 |
| 3500 | 520 | 3 to 4 |
| 4000 | 550 | 3 to 4 |

* Maximum slump unless high range water reducing admixture is used.

B. Area of Application

1. Unless otherwise noted on the Drawings, concrete mixes shall be used as follows:

Class 3000 - kickers for pipe, fittings

Class 3500 - non-reinforced portions of manholes, pipe cradles

Class 4000 - reinforced portions of manholes, sidewalks, drainage structures, retaining walls, curbing and other work not specifically identified.

2.02 MATERIALS

A. Cement

1. Portland cement for concrete and mortar shall conform to ASTM C 150, Type I or II.

B. Water

1. Water shall be potable.

C. Aggregates

1. Aggregates shall conform to ASTM C 33. Obtain aggregates from one source. Aggregates shall not contain any substance which may be deleteriously reactive with the alkalis in the cement.

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D. Admixtures

1. Admixtures for air-entrained concrete shall conform to ASTM C 260, for water reducing (Type A, D or E) accelerating (Type C) and retarding (Type B or D) ASTM C 494. Calcium chloride shall not be used as an admixture. Admixtures shall not be used without prior written approval of the ENGINEER.

E. Reinforcement

1. Reinforcing Bars

- a. Reinforcing bars shall conform to ASTM A 615/A615M Grade 60, ASTM A 616/A616M Grade 60, ASTM A 617/A617M Grade 60 or ASTM A 706/A706M Grade 60 as applicable.

2. Welded Wire Fabric

- a. Welded wire fabric shall conform to ASTM A 497 or ASTM A 185.

PART 3 EXECUTION

3.01 FORMS

- A. Forms shall be used to confine concrete and shape it to the required dimensions. Set forms true to line and grade and make mortar tight. Chamfer above grade exposed joints, edges and external corners 3/4-inch, unless otherwise indicated. Earth cuts may be used as forms for footing vertical surfaces, if sides are sharp and true, and not exposed in finished structure.

3.02 PLACING REINFORCEMENT AND MISCELLANEOUS MATERIALS

- A. Provide bars, wire fabric and other reinforcing materials, including wire ties, supports and other devices necessary to install and secure the reinforcement.

3.03 CURING AND PROTECTION

- A. Protect concrete from injurious action by sun, wind, rain, flowing water or mechanical injury. Do not allow concrete to dry out from time of placement until the expiration of the curing period. Forms may be removed 48 hours after concrete placement.

END OF SECTION

SECTION 16 0500
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Electrical equipment coordination and installation.
 - 2. Sleeves for raceways and cables.
 - 3. Sleeve seals.
 - 4. Grout.
 - 5. Common electrical installation requirements.

1.3 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene terpolymer rubber.
- B. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

- A. Product Data: For sleeve seals.

1.5 COORDINATION

- A. Coordinate arrangement, mounting, and support of electrical equipment:
 - 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 - 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 - 3. To allow right of way for piping and conduit installed at required slope.
 - 4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
- B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

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- C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Access doors and panels are specified in Division 08 Section "Access Doors and Frames."
- D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

PART 2 - PRODUCTS

2.1 SLEEVES FOR RACEWAYS AND CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- C. Sleeves for Rectangular Openings: Galvanized sheet steel.
 - 1. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and no side more than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).
 - b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches (1270 mm) and 1 or more sides equal to, or more than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

2.2 SLEEVE SEALS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Advance Products & Systems, Inc.
 - b. Calpico, Inc.
 - c. Metraflex Co.
 - d. Pipeline Seal and Insulator, Inc.
 - 2. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
 - 3. Pressure Plates: Carbon steel. Include two for each sealing element.
 - 4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

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2.3 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. Comply with NECA 1.
- B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- E. Right of Way: Give to piping systems installed at a required slope.

3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
- B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- E. Cut sleeves to length for mounting flush with both surfaces of walls.
- F. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level.
- G. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and raceway or cable, unless indicated otherwise.

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- H. Seal space outside of sleeves with grout for penetrations of concrete and masonry
 - 1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.
 - I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants."
 - J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."
 - K. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.
 - L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.
 - M. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch (25-mm) annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.
- 3.3 SLEEVE-SEAL INSTALLATION
- A. Install to seal exterior wall penetrations.
 - B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.
- 3.4 FIRESTOPPING
- A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

END OF SECTION 16 0500

SECTION 16 0519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Building wires and cables rated 600 V and less.
 - 2. Connectors, splices, and terminations rated 600 V and less.
 - 3. Sleeves and sleeve seals for cables.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

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1. American Insulated Wire Corp.; a Leviton Company.
2. General Cable Corporation.
3. Senator Wire & Cable Company.
4. Southwire Company.

- B. **Copper** Conductors: Comply with NEMA WC 70.
- C. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN.

2.2 CONNECTORS AND SPLICES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. AFC Cable Systems, Inc.
 2. Hubbell Power Systems, Inc.
 3. O-Z/Gedney; EGS Electrical Group LLC.
 4. 3M; Electrical Products Division.
 5. Tyco Electronics Corp.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- C. Minimum conductor size: #12 AWG.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Exposed Feeders: Type THHN-THWN, single conductors in raceway.
- B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN-THWN, single conductors in raceway.
- C. Exposed Branch Circuits, Including in Crawlspace: Type THHN-THWN, single conductors in raceway.

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- D. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.
- E. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
- F. Class 1 Control Circuits: Type THHN-THWN, in raceway.
- G. Class 2 Control Circuits: Type THHN-THWN, in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- E. Support cables according to Division 26 Section "Hangers and Supports for Electrical Systems."
- F. Identify and color-code conductors and cables according to Division 26 Section "Identification for Electrical Systems."

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.

END OF SECTION 16 0519

SECTION 16 0526

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes: Grounding systems and equipment.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article, including the following:
 - 1. Ground rods.
 - 2. Ground rings.
 - 3. Grounding arrangements and connections for separately derived systems.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

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B. Bare Copper Conductors:

C.

1. Stranded Conductors: ASTM B 8.
2. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

2.2 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 5/8 by 96 inches (16 by 2400 mm) in diameter.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches (600 mm) below grade.

C. Conductor Terminations and Connections:

1. Connections to Ground Rods: Bolted connectors.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

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- B. Ground Rods: Drive rods until tops are 2 inches (50 mm) below finished floor or final grade unless otherwise indicated.
 - 1. Light fixture bases in accordance with detail.

END OF SECTION 160526

SECTION 16 0529

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Hangers and supports for electrical equipment and systems.
 - 2. Construction requirements for concrete bases.

1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. RMC: Rigid metal conduit.

1.4 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.5 SUBMITTALS

- A. Product Data: For the following:
 - 1. Steel slotted support systems.
 - 2. Nonmetallic slotted support systems.

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1.6 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Comply with NFPA 70.

1.7 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.
 - e. Thomas & Betts Corporation.
 - f. Unistrut; Tyco International, Ltd.
 - g. Wesanco, Inc.
 - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 - 3. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Mechanical-Expansion Anchors: Insert-wedge-type, **zinc-coated** steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
2. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
3. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
4. Toggle Bolts: All-steel springhead type.
5. Hanger Rods: Threaded steel.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- C. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, may be supported by openings through structure members, as permitted in NFPA 70.

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- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
 - 6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
 - 7. To Light Steel: Sheet metal screws.
 - 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "Cast-in-Place Concrete."
- C. Anchor equipment to concrete base.
 - 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.

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3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.4 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
- B. Touchup: Comply with requirements in Division 09 for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 16 0529

SECTION 16 0533

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. Related Sections include the following:
 - 1. Division 26 Section "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.

1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. FMC: Flexible metal conduit.
- C. LFMC: Liquidtight flexible metal conduit.
- D. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Qualification Data: For professional engineer and testing agency.
- C. Source quality-control test reports.

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1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Alflex Inc.
 - 3. Allied Tube & Conduit; a Tyco International Ltd. Co.
 - 4. Anamet Electrical, Inc.; Anaconda Metal Hose.
 - 5. Electri-Flex Co.
 - 6. Manhattan/CDT/Cole-Flex.
 - 7. Maverick Tube Corporation.
 - 8. O-Z Gedney; a unit of General Signal.
 - 9. Wheatland Tube Company.
- B. Rigid Steel Conduit: ANSI C80.1.
- C. EMT: ANSI C80.3.
- D. LFMC: Flexible steel conduit with PVC jacket.
- E. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
 - 1. Fittings for EMT: Steel or die-cast, compression type for conduits 2-1/2" and smaller; set-screw or compression type for conduits larger than 2-1/2".
- F. Joint Compound for Rigid Steel Conduit: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

2.2 NONMETALLIC CONDUIT AND TUBING

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. AFC Cable Systems, Inc.
 2. Anamet Electrical, Inc.; Anaconda Metal Hose.
 3. Arnco Corporation.
 4. CANTEX Inc.
 5. CertainTeed Corp.; Pipe & Plastics Group.
 6. Condux International, Inc.
 7. ElecSYS, Inc.
 8. Electri-Flex Co.
 9. Lamson & Sessions; Carlon Electrical Products.
 10. Manhattan/CDT/Cole-Flex.
 11. RACO; a Hubbell Company.
 12. Thomas & Betts Corporation.
- B. ENT: NEMA TC 13.
- C. RNC: NEMA TC 2, Type EPC-40-PVC, unless otherwise indicated.
- D. LFNC: UL 1660.
- E. Fittings for RNC: NEMA TC 3; match to conduit or tubing type and material.
- F. Fittings for LFNC: UL 514B.

2.3 BOXES, ENCLOSURES, AND CABINETS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
 2. EGS/Appleton Electric.
 3. Erickson Electrical Equipment Company.
 4. Hoffman.
 5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
 6. O-Z/Gedney; a unit of General Signal.
 7. RACO; a Hubbell Company.
 8. Robroy Industries, Inc.; Enclosure Division.
 9. Scott Fetzer Co.; Adalet Division.
 10. Spring City Electrical Manufacturing Company.
 11. Thomas & Betts Corporation.
 12. Walker Systems, Inc.; Wiremold Company (The).
 13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

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- B. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

2.4 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

- A. Description: Comply with SCTE 77.
 - 1. Color of Frame and Cover: Gray.
 - 2. Configuration: Units shall be designed for flush burial and have open bottom, unless otherwise indicated.
 - 3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
 - 4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
 - 5. Cover Legend: Molded lettering, as indicated for each service.
 - 6. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
 - 7. Handholes 12 inches wide by 24 inches long (300 mm wide by 600 mm long) and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.5 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

- A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.
 - 1. Tests of materials shall be performed by a independent testing agency.
 - 2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
 - 3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
 - 1. Exposed Conduit: Rigid steel conduit.
 - 2. Concealed Conduit, Aboveground: Rigid steel conduit.
 - 3. Underground Conduit: RNC, Type EPC- 80-PVC, direct buried.
 - 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): **LFMC.**

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5. Boxes and Enclosures, Aboveground: NEMA 250, Type 4.
6. Application of Handholes and Boxes for Underground Wiring:
 - a. Handholes and Pull Boxes in Driveway and sidewalk, Parking Lot, and Off-Roadway Locations, Subject to Occasional, H2O Loading by Heavy Vehicles: Polymer concrete, SCTE 77, Tier 15 structural load rating.

B. Comply with the following indoor applications, unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Damp or Wet Locations: Rigid steel conduit.
4. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, stainless steel in damp or wet locations.

C. Minimum Raceway Size: **3/4-inch (21-mm)** trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

3.2 INSTALLATION

A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.

B. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Support raceways as specified in Division 26 Section "Hangers and Supports for Electrical Systems."

E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.

G. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch (27-mm) trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.

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2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
 3. Change from ENT to rigid steel conduit before rising above the floor.
- H. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- I. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.
- J. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire.
- K. Raceways for Optical Fiber and Communications Cable: Install raceways, metallic and nonmetallic, rigid and flexible, as follows unless otherwise noted:
1. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.
- L. Flexible Conduit Connections: Use maximum of 72 inches (1830 mm) of flexible conduit forequipment subject to vibration, noise transmission, or movement; and for transformers and motors.
1. Use LFMC in damp or wet locations subject to severe physical damage.
 2. Use LFMC in damp or wet locations not subject to severe physical damage.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

- A. Direct-Buried Conduit:
1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "Earth Moving" for pipe less than 6 inches (150 mm) in nominal diameter.
 2. Install backfill as specified in Division 31 Section "Earth Moving."
 3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches (300 mm) of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 31 Section "Earth Moving."

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4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
 - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches (75 mm) of concrete.
 - b. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches (1500 mm) from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.
6. Warning Tape: Bury warning tape approximately 12 inches (300 mm) above direct-buried conduits, placing them 24 inches (600 mm) o.c. Align planks along the width and along the centerline of conduit.

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch (12.5-mm) sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch (25 mm) above finished grade.
- D. Install handholes and boxes with bottom below the frost line, below grade.
- E. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in the enclosure.
- F. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

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1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 16 0533

SECTION 16 0553

IDENTIFICATION FOR ELECTRICAL SYSTEMS

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. Underground-line warning tape.
 - 2. Warning labels and signs.
 - 3. Instruction signs.
 - 4. Equipment identification labels.
 - 5. Miscellaneous identification products.

1.3 SUBMITTALS

- A. Product Data: For each electrical identification product indicated.
- B. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.
- C. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

1.4 QUALITY ASSURANCE

- A. Comply with ANSI A13.1 and ANSI C2.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.145.

1.5 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those

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required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- C. Coordinate installation of identifying devices with location of access panels and doors.
- D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 UNDERGROUND-LINE WARNING TAPE

- A. Description: Permanent, bright-colored, continuous-printed, polyethylene tape.
 - 1. Not less than 6 inches (150 mm) wide by 4 mils (0.102 mm) thick.
 - 2. Compounded for permanent direct-burial service.
 - 3. Embedded continuous metallic strip or core.
 - 4. Printed legend shall indicate type of underground line.

2.2 EQUIPMENT IDENTIFICATION LABELS

- A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).

2.3 NOMENCLATURE FOR EQUIPMENT LABELS

- A. Each switch is to be labeled with its associated circuit number. The Owner will provide the circuit designation number to this contractor for fabrication of the label.

2.4 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Cable Ties: Fungus-inert, self-extinguishing, 1-piece, self-locking, Type 6/6 nylon cable ties.
 - 1. Minimum Width: 3/16 inch (5 mm).
 - 2. Tensile Strength: 50 lb (22.6 kg), minimum.
 - 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
 - 4. Color: Black, except where used for color-coding.
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Raceways and Duct Banks More Than 600 V Concealed within Buildings: 4-inch- (100-mm-) wide black stripes on 10-inch (250-mm) centers over orange background that extends full length of raceway or duct and is 12 inches (300 mm) wide. Stencil legend "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch- (75-mm-) high black letters on 20-inch (500-mm) centers. Stop stripes at legends. Apply to the following finished surfaces:
 - 1. Floor surface directly above conduits running beneath and within 12 inches (300 mm) of a floor that is in contact with earth or is framed above unexcavated space.
 - 2. Wall surfaces directly external to raceways concealed within wall.
 - 3. Accessible surfaces of concrete envelope around raceways in vertical shafts, exposed in the building, or concealed above suspended ceilings.
- B. Accessible Raceways More Than 600 V: Identify with "DANGER-HIGH VOLTAGE" in black letters at least 2 inches (50 mm) high, with self-adhesive vinyl labels. Repeat legend at 10-foot (3-m) maximum intervals.
- C. Power-Circuit Conductor Identification: For primary and secondary conductors No. 1/0 AWG and larger in vaults, pull and junction boxes, manholes, and handholes use metal tags. Identify source and circuit number of each set of conductors. For single conductor cables, identify phase in addition to the above.
- D. Branch-Circuit Conductor Identification: Where there are conductors for more than three branch circuits in same junction or pull box, use marker tape. Identify each ungrounded conductor according to source and circuit number.
- E. Conductors to Be Extended in the Future: Attach write-on tags to conductors and list source and circuit number.
- F. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.
- H. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
 - 1. Labeling Instructions:
 - a. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
 - 2. Equipment to Be Labeled:

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- a. Medium Voltage Switches
- b. Disconnects and Starters.

3.2 INSTALLATION

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- C. Apply identification devices to surfaces that require finish after completing finish work.
- D. System Identification Color Banding for Raceways and Cables: Each color band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- E. Color-Coding for Phase and Voltage Level Identification, 600 V and Less: Use the colors listed below for ungrounded service, feeder, and branch-circuit conductors.
 - 1. Color shall be factory applied.
 - 2. Colors for 208/120-V Circuits:
 - Phase A: Black.
 - Phase B: Red.
 - Phase C: Blue.
 - 3. Colors for 480/277-V Circuits:
 - Phase A: Brown.
 - Phase B: Orange.
 - Phase C: Yellow.
- F. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.
- G. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches (400 mm) overall.
- H. Painted Identification: Prepare surface and apply paint according to Division 9 painting Sections.

END OF SECTION 16 0553

SECTION 16 0923
LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following lighting control devices:
 - 1. Outdoor photoelectric switches.
 - 2. Lighting contactors.

1.3 DEFINITIONS

- A. LED: Light-emitting diode.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show installation details for occupancy and light-level sensors.
 - 1. Interconnection diagrams showing field-installed wiring.
- C. Field quality-control test reports.
- D. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

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1.6 COORDINATION

- A. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, smoke detectors, fire-suppression system, and partition assemblies.

PART 2 - PRODUCTS

2.1 OUTDOOR PHOTOELECTRIC SWITCHES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Area Lighting Research, Inc.; Tyco Electronics.
 - 2. Grasslin Controls Corporation; a GE Industrial Systems Company.
 - 3. Intermatic, Inc.
 - 4. Lithonia Lighting; Acuity Lighting Group, Inc.
 - 5. Novitas, Inc.
 - 6. Paragon Electric Co.; Invensys Climate Controls.
 - 7. Square D; Schneider Electric.
 - 8. TORK.
 - 9. Touch-Plate, Inc.
 - 10. Watt Stopper (The).
- B. Description: Solid state, with DPST dry contacts rated for 1800-VA tungsten or 1000-VA inductive, to operate connected relay, contactor coils, or microprocessor input; complying with UL 773A.
 - 1. Light-Level Monitoring Range: 1.5 to 10 fc (16.14 to 108 lx), with an adjustment for turn-on and turn-off levels within that range, and a directional lens in front of photocell to prevent fixed light sources from causing turn-off.
 - 2. Time Delay: 15-second minimum, to prevent false operation.
 - 3. Surge Protection: Metal-oxide varistor, complying with IEEE C62.41.1, IEEE C62.41.2, and IEEE 62.45 for Category A1 locations.
 - 4. Mounting: Twist lock complying with IEEE C136.10, with base-and-stem mounting or stem-and-swivel mounting accessories as required to direct sensor to the north sky exposure.

2.2 LIGHTING CONTACTORS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Allen-Bradley/Rockwell Automation.
 2. ASCO Power Technologies, LP; a division of Emerson Electric Co.
 3. Eaton Electrical Inc.; Cutler-Hammer Products.
 4. GE Industrial Systems; Total Lighting Control.
 5. Grasslin Controls Corporation; a GE Industrial Systems Company.
 6. Hubbell Lighting.
 7. Lithonia Lighting; Acuity Lighting Group, Inc.
 8. MicroLite Lighting Control Systems.
 9. Square D; Schneider Electric.
 10. TORK.
 11. Touch-Plate, Inc.
 12. Watt Stopper (The).
- B. Description: Electrically operated and mechanically held, combination type with nonfused disconnect, complying with NEMA ICS 2 and UL 508.
1. Current Rating for Switching: Listing or rating consistent with type of load served, including tungsten filament, inductive, and high-inrush ballast (ballast with 15 percent or less total harmonic distortion of normal load current).
 2. Fault Current Withstand Rating: Equal to or exceeding the available fault current at the point of installation.
 3. Enclosure: Comply with NEMA 250.
 4. Provide with control and pilot devices as indicated on Drawings, matching the NEMA type specified for the enclosure.
- C. BAS Interface: Provide hardware interface to enable the BAS to monitor and control lighting contactors.
1. Monitoring: On-off status.
 2. Control: On-off operation.

2.3 CONDUCTORS AND CABLES

- A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG. Comply with requirements in Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

PART 3 - EXECUTION

3.1 SENSOR INSTALLATION

- A. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.

3.2 CONTACTOR INSTALLATION

- A. Mount electrically held lighting contactors with elastomeric isolator pads, to eliminate structure-borne vibration, unless contactors are installed in an enclosure with factory-installed vibration isolators.

3.3 WIRING INSTALLATION

- A. Wiring Method: Comply with Division 26 Section "Low-Voltage Electrical Power Conductors and Cables." Minimum conduit size shall be 1/2 inch (13 mm).
- B. Wiring within Enclosures: Comply with NECA 1. Separate power-limited and nonpower-limited conductors according to conductor manufacturer's written instructions.
- C. Size conductors according to lighting control device manufacturer's written instructions, unless otherwise indicated.
- D. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

3.4 IDENTIFICATION

- A. Identify components and power and control wiring according to Division 26 Section "Identification for Electrical Systems."
 - 1. Identify controlled circuits in lighting contactors.
- B. Label time switches and contactors with a unique designation.

3.5 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare test reports:
 - 1. After installing time switches and sensors, and after electrical circuitry has been energized, adjust and test for compliance with requirements.
 - 2. Operational Test: Verify operation of each lighting control device, and adjust time delays.
- B. Lighting control devices that fail tests and inspections are defective work.

END OF SECTION 16 0923

SECTION 16 5600
EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exterior luminaires with lamps and ballasts.
 - 2. Poles and accessories.

1.3 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color-rendering index.
- C. HID: High-intensity discharge.
- D. LER: Luminaire efficacy rating.
- E. Luminaire: Complete lighting fixture, including ballast housing if provided.
- F. Pole: Luminaire support structure, including tower used for large area illumination.
- G. Standard: Same definition as "Pole" above.

1.4 STRUCTURAL ANALYSIS CRITERIA FOR POLE SELECTION

- A. Dead Load: Weight of luminaire and its horizontal and vertical supports, lowering devices, and supporting structure, applied as stated in AASHTO LTS-4-M.
- B. Live Load: Single load of 500 lbf (2224 N), distributed as stated in AASHTO LTS-4-M.

- C. Ice Load: Load of 3 lbf/sq. ft. (145 Pa), applied as stated in AASHTO LTS-4-M Ice Load Map.
- D. Wind Load: Pressure of wind on pole and luminaire and banners and banner arms, calculated and applied as stated in AASHTO LTS-4-M.
 - 1. Basic wind speed for calculating wind load for poles 50 feet (15 m) high or less is 100 mph (45 m/s).
 - a. Wind Importance Factor: 1.0.
 - b. Minimum Design Life: 25 years.
 - c. Velocity Conversion Factors: 1.0.

1.5 SUBMITTALS

- A. Product Data: For each luminaire, pole, and support component, arranged in order of lighting unit designation. Include data on features, accessories, finishes, and the following:
 - 1. Physical description of luminaire, including materials, dimensions, effective projected area, and verification of indicated parameters.
 - 2. Details of attaching luminaires and accessories.
 - 3. Details of installation and construction.
 - 4. Luminaire materials.
 - 5. Photometric data based on laboratory tests of each luminaire type, complete with indicated lamps, ballasts, and accessories.
 - a. Testing Agency Certified Data: For indicated luminaires, photometric data shall be certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.
 - b. Manufacturer Certified Data: Photometric data shall be certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
 - 6. Drivers, including energy-efficiency data.
 - 7. LED Lamps, including life, output, CCT, CRI, lumens, and energy-efficiency data.
 - 8. Materials, dimensions, and finishes of poles.
 - 9. Means of attaching luminaires to supports, and indication that attachment is suitable for components involved.
 - 10. Anchor bolts for poles.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

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2. Anchor-bolt templates keyed to specific poles and certified by manufacturer.
 3. Design calculations, certified by a qualified professional engineer, indicating strength of screw foundations and soil conditions on which they are based.
 4. Wiring Diagrams: For power, signal, and control wiring.
- C. Pole and Support Component Certificates: Signed by manufacturers of poles, certifying that products are designed for indicated load requirements in AASHTO LTS-4-M and that load imposed by luminaire and attachments has been included in design. The certification shall be based on design calculations by a professional engineer.
- D. Qualification Data: For qualified agencies providing photometric data for lighting fixtures.
- E. Field quality-control reports.
- F. Operation and Maintenance Data: For luminaires and poles to include in emergency, operation, and maintenance manuals.
- G. Warranty: Sample of special warranty.

1.6 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by manufacturers' laboratories that are accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting Products.
- B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- D. Comply with IEEE C2, "National Electrical Safety Code."
- E. Comply with NFPA 70.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Package aluminum poles for shipping according to ASTM B 660.
- B. Store poles on decay-resistant-treated skids at least 12 inches (300 mm) above grade and vegetation. Support poles to prevent distortion and arrange to provide free air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, product(s) indicated on Drawings.

2.2 GENERAL REQUIREMENTS FOR LUMINAIRES

- A. Luminaires shall comply with UL 1598 and be listed and labeled for installation in wet locations by an NRTL acceptable to authorities having jurisdiction.
- B. Lateral Light Distribution Patterns: Comply with IESNA RP-8 for parameters of lateral light distribution patterns indicated for luminaires.
- C. Metal Parts: Free of burrs and sharp corners and edges.
- D. Sheet Metal Components: Corrosion-resistant aluminum unless otherwise indicated. Form and support to prevent warping and sagging.
- E. Housings: Rigidly formed, weather- and light-tight enclosures that will not warp, sag, or deform in use. Provide filter/breather for enclosed luminaires.
- F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses. Designed to disconnect ballast when door opens.
- G. Exposed Hardware Material: Stainless steel.
- H. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:
 - 1. White Surfaces: 85 percent.
 - 2. Specular Surfaces: 83 percent.
 - 3. Diffusing Specular Surfaces: 75 percent.
- I. Lenses and Refractors Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.
- J. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.

- K. Factory-Applied Finish for Aluminum Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - 1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
 - 2. Natural Satin Finish: Provide fine, directional, medium satin polish (AA-M32); buff complying with AA-M20; and seal aluminum surfaces with clear, hard-coat wax.
 - 3. Class I, Color Anodic Finish: AA-M32C22A42/A44 (Mechanical Finish: medium satin; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.
 - a. Color: Dark bronze.

2.3 GENERAL REQUIREMENTS FOR POLES AND SUPPORT COMPONENTS

- A. Structural Characteristics: Comply with AASHTO LTS-4-M.
 - 1. Wind-Load Strength of Poles: Adequate at indicated heights above grade without failure, permanent deflection, or whipping in steady winds of speed indicated in "Structural Analysis Criteria for Pole Selection" Article.
 - 2. Strength Analysis: For each pole, multiply the actual equivalent projected area of luminaires and brackets by a factor of 1.1 to obtain the equivalent projected area to be used in pole selection strength analysis.
- B. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts unless otherwise indicated.
- C. Mountings, Fasteners, and Appurtenances: Corrosion-resistant items compatible with support components.
 - 1. Materials: Shall not cause galvanic action at contact points.
 - 2. Anchor Bolts, Leveling Nuts, Bolt Caps, and Washers: Hot-dip galvanized after fabrication unless otherwise indicated.
 - 3. Anchor-Bolt Template: Plywood or steel.
- D. Handhole: Oval-shaped, with minimum clear opening of 2-1/2 by 5 inches (65 by 130 mm), with cover secured by stainless-steel captive screws.
- E. Concrete Pole Foundations: Cast in place, with anchor bolts to match pole-base flange. Concrete, reinforcement, and formwork.

2.4 ALUMINUM POLES

- A. Poles: Seamless, extruded structural tube complying with ASTM B 429/B 429M, Alloy 6063-T6 with access handhole in pole wall.

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- B. Poles: ASTM B 209 (ASTM B 209M), 5052-H34 marine sheet alloy with access handhole in pole wall.
 - 1. Shape: Round, tapered.
 - 2. Mounting Provisions: Butt flange for bolted mounting on foundation or breakaway support.
- C. Pole-Top Tenons: Fabricated to support luminaire or luminaires and brackets indicated, and securely fastened to pole top.
- D. Grounding and Bonding Lugs: Welded 1/2-inch (13-mm) threaded lug, complying with requirements in Division 26 Section "Grounding and Bonding for Electrical Systems," listed for attaching grounding and bonding conductors of type and size listed in that Section, and accessible through handhole.
- E. Brackets for Luminaires: Detachable, with pole and adapter fittings of cast aluminum. Adapter fitting welded to pole and bracket, then bolted together with stainless-steel bolts.
 - 1. Tapered oval cross section, with straight tubular end section to accommodate luminaire.
 - 2. Finish: Same as luminaire.
- F. Aluminum Finish: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - 1. Class I, Color Anodic Finish: AA-M32C22A42/A44 (Mechanical Finish: medium satin; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.
 - a. Color: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 LUMINAIRE INSTALLATION

- A. Fasten luminaire to indicated structural supports.
 - 1. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.
- B. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources, favoring a north orientation.

3.2 POLE INSTALLATION

- A. Alignment: Align pole foundations and poles for optimum directional alignment of luminaires and their mounting provisions on the pole.
- B. Concrete Pole Foundations: Set anchor bolts according to anchor-bolt templates furnished by pole manufacturer. Concrete materials, installation, and finishing requirements are specified in Division 03 Section "Cast-in-Place Concrete."
- C. Raise and set poles using web fabric slings (not chain or cable).

3.3 CORROSION PREVENTION

- A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.

3.4 GROUNDING

- A. Ground metal poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."
 - 1. Install grounding electrode for each pole unless otherwise indicated.
 - 2. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.
- B. Ground nonmetallic poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."
 - 1. Install grounding electrode for each pole.
 - 2. Install grounding conductor and conductor protector.
 - 3. Ground metallic components of pole accessories and foundations.

3.5 FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage. Replace damaged fixtures and components.
- B. Illumination Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source.
 - 1. Verify operation of photoelectric controls.

END OF SECTION 16 5600

