INVITATION FOR BID
ATTENTION: This is not an order. Read all instructions, terms and conditions carefully.

INVITATION NO.: UK-1809-18
Issue Date: 1-5-18
Title: Concrete Services PCT
Contracting Officer: Jim Sutton
Phone: 859-257-5406

RETURN ONE ORIGINAL COPY AND ONE CD OF BID
TO:
UNIVERSITY OF KENTUCKY
PURCHASING DIVISION BID DESK,
BID # UK-1809-18, BID DATE _1-26-18
322 PETERSON SERVICE BLDG.
411 South Limestone
LEXINGTON, KY 40506-0005

IMPORTANT: BIDS MUST BE RECEIVED BY 1-26-18 @ 3:00 P.M. LEXINGTON, KY TIME

The University’s General Terms and Conditions and Instructions to Bidders, viewable at www.uky.edu/Purchasing/terms.htm, apply to this Invitation for Bid. When the Invitation for Bid includes construction services, the University’s General Conditions for Construction and Instructions to Bidders, viewable at www.uky.edu/Purchasing/ccphome.htm, apply to the Invitation for Bid.

AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST
I hereby swear (or affirm) under the penalty for false swearing as provided by Kentucky Revised Statutes (KRS) 523.040:
1. That I am the bidder (if the bidder is an individual), a partner, (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 attached bid has been arrived at by the bidder independently and has been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other vendor of materials, supplies, equipment or services described in the Invitation for Bids, designed to limit independent bidding or competition;
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 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, 45A.330 to 45A.340.
5. That the Bidders, and its affiliates, are duly registered with the Kentucky Department of Revenue to collect and remit the sales and use tax imposed by Chapter 139 to the extent required by Kentucky law and will remain registered for the duration of any contract award.
6. That I have fully informed myself regarding the accuracy of the statement made above.

COLLUSION PROHIBITED
Any agreement or collusion among bidders or prospective bidders which restrains, tends to restrain, or is reasonably calculated to restrain competition by agreement to bid at a fixed price or to refrain from bidding, or otherwise, is prohibited, in accordance with KRS 45A.325.

SWORN STATEMENT OF COMPLIANCE WITH CAMPAIGN FINANCE LAWS
In accordance with KRS 45A.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 a bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

CONTRACTOR REPORT OF PRIOR VIOLATIONS OF KRS CHAPTERS 136, 139, 141, 337, 338, 341 & 342
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 violations of these statutes must be provided to the University by the successful contractor prior to the award of a contract.

ALL BIDS ARE TO BE "F.O.B. DESTINATION – FREIGHT PREPAID AND ALLOWED"

THIS AREA MUST BE COMPLETED

DELIVERY AFTER RECEIPT OF ORDER: NAME OF COMPANY: PHONE:
FEDERAL EMPLOYER ID NO.: ADDRESS: FAX:
PAYMENT TERMS: ADDRESS: E-MAIL:
SHIPPING TERMS: F.O.B. DESTINATION – PREPAID AND ALLOWED
CITY, STATE & ZIP CODE: WEB ADDRESS:
DUNS #: SIGNATURE: DATE:

SIGNATURE REQUIRED: This bid cannot be considered valid unless signed and dated by an authorized agent of the bidder.
Type or print the information requested in the spaces provided.

Revised January 5, 2017

An Equal Opportunity University
UNIVERSITY OF KENTUCKY
INSTRUCTIONS TO BIDDERS

All University of Kentucky bid solicitations are made upon and subject to the following conditions:

1 Preparation of Bids

1.1 All solicitations are subject to the provisions and requirements of any applicable Kentucky Revised Statutes, including the Kentucky Model Procurement Code, and the rules, regulations and policies of the University of Kentucky including the University of Kentucky’s General Terms and Conditions.

1.2 Bidders are expected to examine the complete bid and all attachments including drawings, specifications and instructions. Failure to do so is at bidder’s risk.

1.3 Bidders shall furnish information required by the solicitation in the form requested. The University reserves the right to reject bids with incomplete information or which are presented on a different form.

1.4 All bids must be legible. A legally authorized company representative shall sign all bids in the appropriate location. Erasures or other changes must be initialed by the person signing the bid. Signature on a bid certifies that the bidder has read and fully understands all bid specifications and bidder agrees to all terms and conditions stipulated in the Invitation For Bids (IFB).

1.5 Bid prices shall be entered in spaces provided on the bid form. All unit prices and mathematical extensions and totals shall be indicated where required. In cases of errors in extensions or totals the unit price will govern.

1.6 Should any potential bidder doubt the true meaning of any part of the solicitation, a written request for an interpretation may be submitted to the University. Requests for such interpretation shall be made in writing to the appropriate Contracting Officer identified in the solicitation. Every interpretation made shall be in the form of an “addendum” to the solicitation sent as promptly as is practicable to all prospective bidders to whom the solicitation has been issued. Failure by the University to send or any potential bidder to receive such interpretation(s) shall not relieve any bidder from any obligations under the bid solicitation or the bidder’s response. Any interpretations, corrections or changes to the solicitation made in any other manner, including oral explanations and instructions, are not binding upon the University.

1.7 Bidders or potential bidders are required to coordinate all discussions concerning solicitations through the appropriate Contracting Officer or other purchasing official within the University of Kentucky Purchasing Division. Bidders or potential bidders are not authorized to communicate with any University administrator, faculty, staff, or Board of Trustees member concerning this solicitation. Failure to comply with this requirement is grounds for the bidder’s disqualification.

1.8 Unless otherwise stipulated in a bidder’s response, the bidder’s offer is in strict accordance with the University’s specifications and terms and conditions of the Invitation For Bids. Any deviations must be fully itemized in detail. Any deviations from the requirements of this solicitation are at bidder’s risk and the University may determine the bid to be non-responsive.

2 Submission of Bids

2.1 Bids, and modifications thereof, shall be returned in a sealed envelope and submitted in such a manner as to ensure their arrival in the University of Kentucky Purchasing Division before the due date and time set forth in the solicitation. The time shown on the recording clock in the Purchasing Division is the official time. Unless otherwise indicated in the solicitation no oral, facsimile, e-mail or telephone bids will be accepted.

2.2 Bids may be modified or withdrawn in writing or in person by an authorized representative if done so prior to the exact time and date for receipt of the bids. Telephone and facsimile modifications or withdrawals are not permitted. Withdrawn bids may be resubmitted, with or without modifications, up to the solicitation due date and time. No bids may be withdrawn after the due date and time without the express authorization of the University of Kentucky Purchasing Division.
2.3 Bids received after the designated time and date in the solicitation will not be considered. Bids will or will not be publicly opened and read in accordance with the Invitation For Bids.

2.4 Bidders shall show the bid due date and time, the solicitation number, and the name and address of the bidder on the face of the bid envelope.

2.5 All bids will be considered firm for a period of forty-five (45) calendar days from the bid opening date.

3 Specification Requirements

3.1 Unless otherwise specified in the solicitation, all items bid are to be new, unused, and not remanufactured in any way.

3.2 Whenever a trade name, brand name, or model and catalog numbers followed by the words “or equal” or “approved equal” are used in the bid invitation it is for the purpose of item identification and to establish standards of quality, style, and features. Bids on equivalent items, substantially the same, are invited. However, to receive consideration, sufficient descriptive literature and/or specifications to clearly identify the item and provide for competitive evaluation must accompany the bid. The University will be the sole judge of equality and suitability. If bidder does not identify exceptions to the specifications shown in the IFB, bidder will be required to furnish the brand name(s), models, numbers, etc. specified in the IFB.

3.3 Unless stated otherwise in the solicitation, alternate bids will be considered. Alternate bids may be made in addition to responding to the solicitation or as the only response to the solicitation. However, the University is under no obligation to consider or accept an alternate bid and it reserves the right to reject any and all such bids.

3.4 The University reserves the right to request samples of any or all items bid in order to determine compliance with the specifications. The bidder must provide the samples within ten (10) days of the request and at no charge to the University. Samples are non-returnable. Failure to comply may be cause for rejection of the bid.

3.5 Bidders shall clearly delineate any deviations or exceptions from the bid specifications.

3.6 Except as otherwise provided in the solicitation, all bid prices must be firm. Prices subject to qualifications, such as escalation or other variables, may be rejected as non-responsive.

3.7 Unless otherwise stipulated in the solicitation, all quantities are estimates and do not represent a minimum guarantee. The University is obligated to purchase only those quantities needed during the term of the contract and it reserves the right to purchase more or less than the estimated quantities. The University is obligated only for those quantities ordered.

3.8 Proposed delivery dates shall be stated in number of calendar days after receipt of order.

3.9 All offers shall be F.O.B. destination, freight prepaid and allowed.

4 Bid Evaluation and Award

4.1 Bids will be evaluated and the award made to the lowest responsive, responsible bidder who offers the best value to the University and meets the terms, conditions and specifications of the Invitation For Bids.

4.2 The term “Responsible Bidder” means a person, company, or corporation who has the capability in all respects to perform fully the contract requirements and the integrity and reliability that will assure good faith performance. In determining whether a Bidder is responsible, the University may evaluate various factors including (but not limited to) financial resources; experience; organization; technical qualifications; available resources; record of performance; integrity; judgment; ability to perform successfully under the terms and conditions of the contract; and adversarial relationship between the Bidder and the University that is so serious and compelling that it may negatively impact the work performed under this Invitation for Bid; or any other cause determined to be so serious and compelling as to affect the responsibility of the Bidder.

4.3 The University reserves the right to accept or reject any and all bids or part of a bid and waive informalities, technical defects and minor irregularities in the bids received. Further, the University reserves the right to
make a single award, split awards, make multiple awards or no award whichever is in the best interest of the University.

4.4 Unless stated otherwise in the solicitation, the University reserves the right to award the contract to the lowest aggregate bidder for all items, on an item by item basis, or a group of like items whichever is found to be in the best interest of the University. The University will consider bids submitted on an “all or nothing” basis if the bid is clearly designated as such.

4.5 In accordance with KRS 45A.494, a resident bidder of the Commonwealth of Kentucky shall be given a preference against a nonresident bidder. In evaluating proposals, the University will apply a reciprocal preference against a bidder submitting a proposal from a state that grants residency preference equal to the preference given by the state of the nonresident bidder. Resident bidder and nonresident bidder shall be defined in accordance with KRS 45A.494(2) and 45A.494(3), respectively. Any Respondent claiming Kentucky residency status shall submit with its proposal a notarized affidavit affirming that it meets the criteria as set for in the above referenced statute.

4.6 The University shall issue a price contract or purchase order as its notification of award to the successful bidder(s). Until such date a price contract or purchase order is issued, nothing shall be construed to constitute a binding agreement between the University and the bidder.

5 Payment and Taxes

5.1 The successful bidder shall be paid, at the prices stipulated, for items or services delivered and accepted, upon the submission of proper invoices to the billing address shown on the purchase order. The University’s standard payment terms are net 30 days after acceptance.

5.2 Bidders may offer prompt payment discounts. The University will not consider any prompt payment discounts in determining the bid award.

5.3 The University utilizes a procurement card program as the preferred method of payment. The University assumes that all successful bidders will accept the University’s procurement card as a method of payment unless a specific exception is stated in the bidder’s response to the IFB. No additional charges may be added for acceptance of the procurement card.

5.4 The University is tax exempt from the provisions of the Kentucky Sales and/or Use Tax (Tax Exemption # A00276) on materials and equipment under this solicitation. The University is also entitled to exemption from the Federal Excise Tax. All bidders shall take this into consideration when submitting their bid. Exemption certificates will be furnished upon request. Bidders are informed that material purchased by the contractor for the performance of this contract for the University are not exempt from the provisions of the Kentucky Sales and/or Use Tax. All adjustments and allowances for the current sales and/or use tax shall be included in the bid price.

6. Kentucky’s Personal Information Security and Breach Investigation Procedures and Practices Act

To the extent Company receives Personal Information as defined by and in accordance with Kentucky’s Personal Information Security and Breach Investigation Procedures and Practices Act, KRS 61.931, 61.932 and 61.933 (the “Act”), Company shall secure and protect the Personal Information by, without limitation: (i) complying with all requirements applicable to non-affiliated third parties set forth in the Act; (ii) utilizing security and breach investigation procedures that are appropriate to the nature of the Personal Information disclosed, at least as stringent as University’s and reasonably designed to protect the Personal Information from unauthorized access, use, modification, disclosure, manipulation, or destruction; (iii) notifying University of a security breach relating to Personal Information in the possession of Company or its agents or subcontractors within seventy-two (72) hours of discovery of an actual or suspected breach unless the exception set forth in KRS 61.932(2)(b)2 applies and Company abides by the requirements set forth in that exception; (iv) cooperating with University in complying with the response, mitigation, correction, investigation, and notification requirements of the Act, (v) paying all costs of notification, investigation and mitigation in the event of a security breach of Personal Information suffered by Company; and (vi) at University’s discretion and direction, handling all administrative functions associated with notification, investigation and mitigation.
SCOPE

Furnish all labor, materials and equipment to install, replace, and/or construct concrete, masonry, and associated projects as authorized and identified by the University of Kentucky Physical Plant Division as described in these specifications. All listed line items will be bid on a unit price basis.

CONTRACT PERIOD

The Price Contract(s) established from this Invitation for Bids will be in effect for one year from date of award with the option to renew for four (4) additional years in one year increments upon mutual consent of the University and the successful contractor.

TERMS AND CONDITIONS

The University’s General Terms and Conditions and Instructions to Bidders, viewable at www.uky.edu/Purchasing/terms.htm apply to this Invitation to Bid. When the Invitation for Bid includes construction services, the University’s General Conditions for Construction and Instructions to Bidders, viewable at www.uky.edu/Purchasing/ccphome.htm, apply to the Invitation for Bid.

PRICE CHANGES

Prices will remain firm for the initial period (see contract period) of the price contract. The University or contractor may request a change in prices to be in effect for the length of the extension period. Any request for price changes must be received in the Purchasing Division in writing 30 days prior to the end of the current contract period. Upon approval by the Purchasing Division, prices shall remain firm for the length of the contract period. Any price changes must be substantiated by firm proof that conditions have changed in the industry, which would warrant a change in price.

EXTENDED PRICING

Is the bidder willing to extend pricing to other state universities and University affiliate organizations within the Commonwealth of Kentucky?

YES ☐ NO ☐

RESTRICTIONS ON COMMUNICATIONS WITH UNIVERSITY STAFF

From the issue date of this IFB until a Contractor is selected and a contract award is made, Bidders are not allowed to communicate about the subject of the IFB with any University administrator faculty, staff, or members of the Board of Trustees except:

- The Purchasing Office representative, any University Purchasing Official representing the University administration, or others authorized in writing by the Purchasing Office and
- University Representatives during Bidders presentations.

If violation of this provision occurs, the University reserves the right to reject the Bidder’s proposal.

INVITATION SUBMISSION AND DEADLINE

The University of Kentucky accepts deliveries of IFB’s Monday through Friday from 8:00 am – 5:00 pm Lexington Kentucky time. However, IFB’s must be received by 3:00 pm Lexington Kentucky time on the date specified on the IFB in order to be considered.
BIDDER QUALIFICATIONS

A. Bidders primary business is Concrete and Masonry

B. Bidders shall have been doing business under their current name for at least 5 years.

C. All work described in these specifications shall be accomplished using the contractors employees i.e. laborers and supervision.

D. Successful bidder shall be required to provide training and certification for at least two laborers and one supervisor in the application of the flooring materials described in these specifications.

E. Brokers shall not be qualified to bid this contract.

F. Bidders shall provide a list of at least 10 projects in the immediate vicinity for the University to examine quality and workmanship of past concrete work. Age of projects shall be from recent to five or more years old.

BONDING

All bids shall be accompanied by a bid guarantee of not less than five (5%) percent of the total bid amount.

PAYMENT AND PERFORMANCE BOND

A. $100,000.00 Performance and Payment Bond shall be furnished by the successful bidder for

1. The faithful performance of this contract

2. The payment of all persons performing labor on this contract, including the payment of all unemployment contributions which become due and payable under Kentucky Unemployment Insurance Law, and for furnishing materials in connection with this contract.

BASIS FOR PRICE QUOTATION

The unit prices on this Invitation shall be firm for the first year of the contract. Prices may be adjusted if the University and the contractor agree the increase is justified. If a increase is justified, then 50% of the increase will be tied directly to the Producer Price Index, Table 6, Construction & Equipment, Concrete Equipment Code # 1127-0155, and 50% will be the difference in general labor rates as adjusted by the labor cabinet for Fayette County (Current labor listing is CR-1-008).

QUOTING OF WORK

A. After the walk through, contractor will provide quotation of the work to include each line itemized with the line item used in the Technical specifications, the quantity of units and the unit price.

B. After the walk through, contractor will provide the quotation within corresponding working days as follows:

   a. Less than $25,000 – 3 days
   b. $25,000 to less than $50,000 – 5 days
   c. $50,000 to less than $100,000 – 7 days
   d. $100,000 to less than $150,000 – 10 days
   e. $150,000 or greater – 12 days

CONTRACT CONDITIONS

The contractor shall carefully examine the specification and details to verify that the provisions are adequate to carry out the scope of the project. Should there be error, omission, or condition that will prevent a satisfactory construction, Contractor shall notify the Purchasing Division, in writing, no later than 10 days prior to the bid date for clarification or interpretation.
COORDINATION OF WORK

The Contractor may be required to prepare a schedule and coordinate with the Owner's Representative, where the work will start, and the duration of the work in each area. The Contractor will give the Owner's Representative, seven (7) days' notice of the date that work will be started, or sooner if requested by the Physical Plant Representative.

OWNER/CONTRACTOR COMMUNICATION

All directions to the Contractor shall be from the Physical Plant representative while work is being performed under this contract.

THE OWNER

Wherever in these Contract Documents reference is made to the OWNER, it shall be understood to mean THE UNIVERSITY OF KENTUCKY. The University's Representative during construction shall be the designated University of Kentucky, Physical Plant Division Representative.

MAINTENANCE OF EXISTING FACILITIES

Campus buildings will remain in use and the Owner shall have access to the existing buildings throughout the duration of projects. The Contractor shall:

A. Coordinate construction activity to assure the safety of those who must cross the project site and shall cooperate with the University in minimizing inconvenience to, or interference with normal use of existing building and grounds by staff, students, other Contractors, or the public.

B. Provide and maintain the necessary barriers and accommodations for a completely safe route of accessibility.

C. Insure that all exits provide for free and unobstructed egress. If exits must be blocked, then prior arrangements must be made with the Physical Plant representative.

D. Conduct operations to prevent damage to adjacent building structures and other facilities, as well and in such a manner to protect the safety of building occupants.

E. Make a special effort to prevent employees from entering existing building for reasons except construction business.

SANITARY FACILITIES

A. The contractor will be required to provide portable toilets at his cost for his staff and workers.

B. Drinking water for his staff and workers shall be provided by the Contractor.

WALK THROUGH

After the "Work Order" is issued but before work on any project is started by the Contractor, a walk-through of the area is required to document condition of the space, surfaces, or equipment. Contractor must participate in a walk-through, within 5 days from the date of requested Physical Plant Representative.

A. All damaged surfaces or other defective items to be recorded to preclude subsequent disputes of responsibility for such damages.

B. The walk-through to be attended by the following:

1. Owner's Representative
2. Contractor
CONSTRUCTION SCHEDULE

The Physical Plant Representative shall be responsible for coordinating allowable work times for the Contractor.

A. In general, work at the job site can be the time between daylight and dark.

B. With Owner permission, work may be done after dark with the use of artificial lighting. It must be noted that such work may be stopped due to the disturbing of and complaints from the University’s neighbors, students, or staff.

C. Saturday and/or Sunday work is acceptable.

D. Contractor to provide Gantt chart project schedule for the construction to include at a minimum start, demolition, forming, concrete placement and finish dates

CUTTING AND PATCHING

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

TEMPORARY WORK

All required temporary work shall provide for safe and proper performance of the work. The contractor shall be responsible for adequate design and construction of all temporary work used in construction of Contract Work.

CLEANING AND TRASH REMOVAL

A. The Contractor shall provide adequate trash containers of proper size. Each subcontractor shall collect and deposit his debris in the containers. The Contractor shall remove all trash from the project daily or as appropriate.

B. The Contractor shall keep the areas of construction clean.

C. The Contractor shall be responsible for removal from the site of all their liquid waste or other waste that required special handling.

D. Failure to comply with the above requirements shall be cause for stopping work until the condition(s) is corrected.

E. Upon completion of the work, thoroughly clean the construction area repair any damage created during the construction.

SITE PROTECTION AND MATERIALS STORAGE

A. The contractor will be responsible for storage and of his own materials and equipment, and the removal of same upon completion of work. Area to be designated by Physical Plant representative prior to start of work.

B. The Contractors and Subcontractors are responsible for the security of their materials, tools and equipment on the project site. The University is not responsible for theft or vandalism to any such materials, tools, or equipment.

C. When the contractor is to have active work sites open over night, he shall enclose the designated work site using a (3) feet height plastic fence. Fence post shall be spaced between 6 and 8 feet. The fabric shall be securely tied to all fence posts. The layout of the fence shall have the prior approval of the Physical Plant representative.

CONSTRUCTION FENCE

NOTE: No fence posts will be allowed to penetrate blacktop surfaces. Manufactured stands and/or buckets containing concrete or other heavy material shall support such posts.

A. All fencing to comply with Section 3304.0 of the Kentucky Building Code except where the following requirements are more stringent:
1. All job site fencing perimeters within 5 feet of a walkway, street, lot line, or public way shall be 8 feet in height.

2. All job site perimeter fencing more than 5 feet from a walkway, street, lot line, or public way shall be a minimum of 6 feet in height.

3. It shall be the 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.

4. The 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 Contractor shall reset the fence and posts and assure that they are in place at the close of the working day.

With Owner approval, plastic construction fence may be used in areas not close to pedestrian traffic. However, the plastic fence must be kept in a well-maintained condition including tying to posts at the top and the middle and having a wire threaded through the top of the fabric to keep the fence from drooping in the spans.

**DELIVERIES**

The route for delivery of materials shall be coordinated with the Physical Plant representative.

**FIRE PROTECTION DURING CONSTRUCTION**

All contractors will maintain fire protection as required by the Kentucky Building Code. If the Contractor utilizes University owned portable fire extinguishers during the contract period, then the Contractor is responsible for servicing the extinguishers utilized. Contractors are responsible for training their employees in using fire fighting equipment. On renovation projects where a building, wing, or floor are turned over to the contractor, then the Contractor will be responsible for maintaining all existing Fire Protection Equipment and must replace any fire protection equipment damaged, lost, or misplaced during the contract period.

**FIRE TRUCK ACCESS**

During construction, access to the surrounding building must be maintained for local fire truck access.

**EMPLOYEE CONDUCT**

It shall be the Contractor’s responsibility to control the conduct of all employees while on the University's campus. It must be understood that any worker using or under the influence of alcohol and/or controlled substances other than prescription medications shall not be allowed on the campus of the University of Kentucky and will be permanently dismissed from working on campus if found to be so. Further, offensive language, sexual or other types of harassment of University students, faculty, staff or visitors could result in immediate and permanent dismissal of the offending person(s) from the campus. The University of Kentucky is a Tobacco Free campus and any violation will result in initial warning and repetitive violation can result in immediate dismissal from working on campus for a period of time.

**AUTHORIZATION OF WORK**

For each individual project to be completed under these specifications, a separate order will be issued. The process for project authorization will be as follows:

**NOTE:** No work shall be started and/or completed without an authorized purchase order having been issued. Should the Contractor start and/or complete a project an authorized purchase order the contractor is taking the risk of not being paid for such work.

A. The owner will identify a project and the bounds of that project to the Contractor with drawing, specifications, and a site visit (or a site visit on smaller projects).

B. For each identified project and using the unit prices of the Contract, the Contractor shall present a written quote, including a project item number, to the Owner.

C. Should there be operation not included in the Contract, the Contractor should identify these and include quotes on such items.

D. Projects under this contract will generally be those limited in scope to under $200,000.00.
E. The University of Kentucky reserves the reject any pricing proposal for work required and request sealed bids if necessary.

F. If the contractor does not respond within specified time to conduct the site visit for a specific project within 5 days of being notified or does not provide a quote for requested work after conducting the work through visit within times specified, the University of Kentucky can choose to complete work.

CODES AND STANDARDS

The design, construction and performance of equipment materials provided under this contract will meet and exceed the requirements of the latest issue of applicable codes and standards of the following authorities:

- Kentucky Building Code
- Occupational Safety and Health Administration
- National Fire Protection Association
- Underwriters Laboratories
- State and Local Fire Marshals
- City and County Building Codes

All work done on this Contract will include all work required by the applicable codes and standards.

CANCELLATION CLAUSE

The contract may be canceled by either party by giving the other (30) thirty days written notice prior to the effective cancellation date.

TERMINATION FOR CONVENIENCE

PRODUCTS

The University of Kentucky, Division of Purchasing, reserves the right to terminate all or part of the resulting contract without cause, with a 30 day written notice. Product orders may not be accepted (shipped and invoiced) by the vendor following the termination of the contract without approval from the Purchasing Division.

SERVICES

The University of Kentucky, Division of Purchasing, reserves the right to terminate this agreement without cause with a 30 day written notice. Upon receipt by the contractor of “Notice of Termination”, the contractor shall discontinue all services with respect to the applicable agreement. The cost of any agreed upon services provided by the contractor will be calculated at the agreed upon rate prior to “Notice of Termination”, and a fixed fee contract will be pro-rated (as appropriate).

INVOICING AND PAYMENT PROCEDURES

Vendor is to submit proper invoices to the address shown on each purchase order. The following items are to be included on each invoice:

a. Purchase Order Number
b. Ship-to-Address
c. Purchase Order item number
d. Vendor Catalog number
e. Item Cost

Payment will be made as each shipment is completed and invoiced. The vendor will be required to include the contract number and/or purchase order number on the invoice that was assigned when the request for shipment was made.

If invoice pricing is not in accordance with the University of Kentucky’s established Price Contract on file in the Purchasing Division, the invoice will be short paid.

WORK BY OTHERS

The University will move any plants or trees necessary for the execution of this contract. No major root system of a tree shall be cut or damaged in any way during construction without the written consent of the Director's Office of the Physical Plant Division through the PPD project manager.
Unless otherwise specified, removal or replacement of sod may be by the Physical Plant Grounds Division.

If the sod is of such nature that it is not to be saved or reused, the Contractor shall excavate and remove the sod from the premises.

All adjustments of manhole covers, valve boxes, monuments, markers, and any other similar structure shall be made by this contractor.

CLEAN-UP

The Contractor shall remove all materials, excess earth, rock or rubbish resulting from his work and leave the site clean. Excess material shall be removed from site the day it is excavated unless the situation does not allow for this, then the cleanup shall be made as soon as possible.

CONTRACTOR QUALIFICATIONS

Work shall be performed by mechanics skilled in their respective trades and shall present appearance typical of best trade practice. Work not done and concrete not installed in this manner shall be repaired, removed/replaced, or otherwise remedied as directed by the Physical Plant representative. See bidder qualifications under separate section.

FINAL INSPECTION

After all work is completed, a final inspection shall be made by the Director of the Physical Plant Division, or his representative. Any work not up to standard shall be torn out and replaced before final payment is made.

CORRECTION OF WORK AFTER FINAL PAYMENT

Neither the final certificate of payment nor any provisions in the contract documents shall relieve the Contractor of responsibility for faulty materials or workmanship and, unless otherwise specified, be shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of the certificate of substantial completion approved by the Owner. The Owner shall give notice of observed defects with reasonable promptness.

INSURANCE REQUIREMENTS

The successful contractor agrees to furnish Certificates of Insurance for the described coverages and limits to the University of Kentucky, Purchasing Division. The University, its trustees and employees must be added as additional insured on the Commercial General Liability policy with regard to the scope of this solicitation. Any deductibles or self-insured retention in the above-described policies must be paid and are the sole responsibility of the contractor. Coverage is to be primary and non-contributory with other coverage (if any) purchased by the University. All of these required policies must include a Waiver of Subrogation (except Workers’ Compensation) in favor of the University, its trustees and employees.

The Construction Manager 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. The Contractor shall not commence, nor allow any subcontractor to commence work under this contract, until the Owner has reviewed the certificates and approved coverage’s and limits as satisfying the requirements of the bidding process.

A. Workers’ Compensation- Statutory Requirements (Kentucky)

B. Employers’ Liability Insurance. The Contractor shall acquire and maintain Employers’ Liability insurance with at least $500,000/$500,000/$500,000 limits of liability for all employees who will be working on the Project site.

C. Commercial General Liability Insurance. The limits of liability shall not be less than $2,000,000 each occurrence combined single limits for bodily injury and property damage. If the work involved requires the use of helicopters, a separate aviation liability policy with limits of liability of $50,000,000 will be required. If cranes and rigging are involved, a separate inland marine policy with liability limits of $10,000,000 will be required.

D. Comprehensive Automobile Liability Insurance. Policy limits shall not be less than $1,000,000 for combined single limits for bodily injury and property damage for each occurrence.

E. Excess or Umbrella Liability Insurance. This policy shall have a minimum of $1,000,000 combined single limits for bodily injury and property damage for each occurrence in excess of the applicable limits in the primary policies.
DRAWINGS, SPECIFICATIONS AND FIELD CONDITIONS

A. Prospective Contractors will secure all data at the sites of the project such as convenience of receiving and sorting material, location of public services, and other information which will have a bearing on making their proposals or on the execution of the work if awarded the Contract, and no allowance will be made for failure of the Contractor to obtain such site information prior to quoting.

B. The Contractor shall be responsible for verification of all measurements before ordering and materials or doing any work. No extra charge or compensation shall be allowed due to differences between actual dimension and dimensions indicated on the drawings. Any such discrepancy in dimension that may be found shall be submitted to Owner’s representative for consideration before proceeding with the work in the affected area.

EQUIPMENT

The contractor shall provide any equipment needed to complete this work required.

UTILITIES

The University shall provide water for this project.

TEST AND INSPECTIONS

Unless otherwise noted herein the cost of testing shall be paid for by the contractor with the testing laboratory approved by the Owner. Refer to the Technical Specifications for particular testing requirements, and/or work performed or coordination required by the Contractor in connection therewith.

FIELD OFFICE

A field office shall not be required for this contract; however, the Contractor may establish such office if he so desires.

GUARANTEE AND WARRANTY & PERIOD OF LIABILITY

Neither the final certificate of payment nor any provisions in the Contract Documents nor partial or entire or occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship.

The Contractor shall guarantee that labor, equipment and materials will be free of defects for period of one (1) year form the date of substantial completion unless special conditions and/or additional warranty periods are required in the Contract Documents. The Owner will give notice of observed defects with reasonable promptness. Expendable items and wear from ordinary use are exclude from this guarantees. Prior to final payment of the Work, the Contractor shall assemble and present to Physical Plant all guarantees and warranties required by the Contract documents.

NOTICE AND SERVICE THEREOF

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

PROJECT COMPLETION

Prior to requesting final for any given project, the contractor shall complete the following list:

A. Completed all work required by the specifications and drawings.

B. Complete final clean up requirements, including touch up of any marred surfaces.

C. The University may assess liquidated damages of $250.00 per day to individual Purchase Orders based on the schedule provided with the project
CONTRACTOR VEHICLES AND PARKING AT THE WORK SITE

The University of Kentucky will control the number of private vehicles driven onto the University and particular onto the work site. **The Contractor is hereby put on notice that, unless the vehicle on site is required, the Contractor must remove it or the University, at the Contractor’s expense, will tow it.**

1. Under normal circumstances, two Contractor vehicles will be allowed on site.

2. Without permission, no parking will be allowed outside the staging areas. Staging areas will be agreed to prior to the beginning of work at any site.

3. Excessive turf damages due to unauthorized traffic to and from the work site and outside staging areas shall be returned to normal conditions after all work is completed at that site. Normal shall mean the condition of the turf prior to the start of the project.

4. To the degree that it is possible, parking and repeated driving within the drip line of trees is to be avoided. Staging areas should be laid out with this consideration in mind.

5. Self-propelled equipment (backhoes, Track-hoes, etc.), which is required for the completion of the project, IS NOT included in the two-vehicle limit.

6. The two-vehicle limit will include private vehicles, which the Contractor may require and designate as necessary to the work.

7. To exceed the limit of two vehicles, the Contractor must have the Owner’s permission or the offender(s) will be asked to remove his/(their) vehicle(s) or be towed.

The Contractor may park in campus lots during the school “in session” months but must purchase parking permits to do so. Permits may be purchased at a cost of $37.00 per month for “E” lots, and $272.00 for the “K” lot at the Stadium. The Contractor must be mindful that parking spaces may or may not be available in the vicinity of work sites depending on the parking demand on the date of need

ITEM ADDITIONS TO CONTRACT

The University of Kentucky reserves the right to add related items to the contract established from this Invitation for Bids.

The University reserves the right to incorporate any awarded items into existing price contracts upon mutual consent of the successful bidder.

QUANTITIES

All yearly quantities referenced are ESTIMATES only. The University makes no guarantee or promise as to the actual quantities ordered.
TECHNICAL SPECIFICATIONS

1.0 GENERAL

1. General

1. The intent of these specifications is to provide standards for the design, construction, and materials of concrete slabs, walkways, sidewalks, plazas, driveways, and other work items listed in the specifications intended for placement on the UK Lexington Campus.

2. Where required, all digging, forming, removal and disposal of debris, finishing, and protection of the concrete is included as part of the Contractor's responsibility.

3. After forms are removed from concrete, the contractor shall return the disturbed adjacent soil to its original grade. The contractor is not responsible for topsoil, seed, or sod unless:
   a. Specifically requested or required by the project drawings and specifications or,
   b. There are damages outside the construction area, and/or
   c. There is contractor negligence.

4. Tree and shrub damage is to be held to a minimum. All potential situations where such damage may occur shall be discussed with the Owner prior to beginning the project; otherwise, the Contractor will be held liable for replacement of damaged plantings.

5. Prior to the start of any project, the Contractor shall meet with the Owner's representative and the Superintendent of Grounds to establish staging and parking/equipment areas. Fencing requirements will be established at this meeting.

2. Temporary Erosion and Sediment Control

The Contractor shall adhere to the requirements of the approved KPDES permit, the Notice of Intent, and the requirements of the LFUCG “Storm water Manual,” specifically Chapter 10, “Storm water Best Management Practice for Water Quantity and Water Quality Control" and Chapter 11, “Erosion and Sediment Control.” The use of best management practices, such as temporary seeding, mulching, permanent seeding, sod, stabilization, construction entrances, dust control, temporary ditches, rock checks, stilling basins and other measures shall comply with the most stringent requirements of the regulatory agencies having jurisdiction at this site.

3. For construction projects disturbing less than one acre exercise best management practices (BMP) throughout the duration of the project in order to control water pollution and silt from surface runoffs. Such practices may include but are not limited to: (1) Retainage/Management of site runoff by the use of berm(s), slope drains, ditch checks, straw bales, or silt fences; and (2) Retainage of silt and debris. Pollutants such as chemicals, fuels, lubricants, bitumen or other harmful materials shall not be discharged from the site. In the event of conflict between these requirements and pollution control laws, rules or regulations of other state or federal agencies, the more restrictive shall apply. It will be the responsibility of the contractor to bring these conflicts to the attention of the Owner.

4. For construction projects disturbing 1 acre or more comply with the Kentucky General Construction Stormwater Permit KYR10. This permit requires all construction activities to: (1) Submit a signed Notice of Intent (NOI) form to the Kentucky Division of Water at least 48 hours before construction activity begins; and (2) Submit a copy of the NOI to the municipal operator of any municipal separate storm sewer (MS4) the site discharges into; and (3) Develop and implement a “Storm Water Pollution Prevention (BMP) Plan; and (4) Continue to implement the plan during construction activity, including inspections every 7 days and after each rain on on-half inch or more. Inspections are by both UK and KDIV; and (5) Submit a signed Notice of Termination (NOT) form to the Kentucky Division of Water after the site has been finally stabilized. The General Contractor will be responsible for paying any penalties levied against UK due to violations on a construction project.

5. Fully investigate and comply with all requirements of the Kentucky Division of Water, KPDES Branch, and Lexington-Fayette Urban County Government Division of Environmental and Emergency Management and Division of Engineering.

6. Notwithstanding any information provided in this document, the Contractor/Design Professional of Record shall perform work in accordance with all applicable federal, state, and local regulations and accepted safety practices.
References

Standards and specifications referred to are those of the American Society of Testing and Materials (ASTM), Portland Cement Association (PCA), the American Concrete Institute (ACI) and the Kentucky Building Code.

2.0 MATERIAL

1. Cement Concrete, General

Cement concrete shall consist of a mixture of Portland Cement, fly ash, fine aggregate, coarse aggregate, air entrainment, combined in the proportions, and mixed to the consistency specified.

2. Cement

Cement, unless otherwise specified, shall conform to ASTM C150 for Portland Cements and ASTM C595 for Blended Hydraulic Cements.

3. Cement types

Cement types for use by the University of Kentucky are as follows:

1. Type IA-S (25% fly ash ASTM C595 and ASTM C618)
2. Type IIIA high early strength (ASTM C150)

4. Fine Aggregate

Fine aggregate consists of natural sand having clean grains, free from injurious amounts of clay, flaky material, lignite, organic material and other such foreign substances shall meet the requirements of ASTM C33.

5. Coarse Aggregate

Coarse Aggregate shall be crushed stone or gravel having clean, hard, particles. Crushed stone is preferred for coarse aggregate; gravel shall not be used except when requested or specified by the Owner for exposed aggregate concrete. It shall be free from injurious amounts of soft, friable, thin, elongated or laminated pieces, shall meet the requirements of ASTM C33.

6. Water

Water shall be kept free from injurious amounts of oil, acid, alkali, organic matter, or other such deleterious substances. A rule of thumb to follow is that when the water is fit to drink, it is suitable for concrete.

7. Admixtures

Admixtures acceptable to the University of Kentucky are:

a. Accelerant
b. Air entraining admixtures (ASTM C226)
c. Antifreeze agents
d. Bonding admixtures
e. Coloring agents (ASTM C979)
f. Curing Compounds

Curing compounds that leave a film or sheen on the concrete surface are prohibited. Such compounds inhibit the application of Chemtrete waterproofing fluid and render the application of
Chemcrete useless resulting in wasted resources. See following information for acceptable curing compounds.

**Sodium Silicates are acceptable** including curing compounds such as:
1. Sonneborn’s Sonosil
2. L&M’s L&M Cure
3. Dayton Superior’s Day Chem Sil-Cure (J-13)

**Dissipating Resins (film-forming curing compounds) are unacceptable** including curing compounds such as:

1. W. R. Meadows’ Clear 1100
2. Euclid’s Kurez DR

**g. Hardeners** (All exposed concrete slabs indicated to receive hardener shall be thoroughly cleaned at completion of project). Apply hardening compound in strict conformance with manufacturer’s directions.

**h. Retarder** (ASTM C494, Type B) for use:
1. At temperatures greater than 90 degrees F, or
2. For use on exposed aggregate surfacing

**i. Super plasticizers** (ASTM C1017, Type 1)

**NOTES:**
1. Antifreeze agents containing chlorides are expressly prohibited in University of Kentucky concrete.
2. Free flowing concrete shall be provided only on request and shall be provided only by using admixtures (super plasticizers) expressly designed for that purpose. Water shall not be used.

**8. Welded Wire Fabric**

Welded Wire Fabric shall be 6” X 6” – 1.4W x 1.4W (#10) grid unless otherwise specified.

**9. Dowel pins and sleeves**

Dowel pins shall be #4 (1/2") reinforcing rod cut in lengths of 9 inches. Sleeves for the dowel pins shall be 3/4” PVC conduit cut in lengths of 5 inches. With Owner’s approval, an alternate method of pinning may be allowed.

**10. Tactile Warning Strips**

Tactile warning strips shall be constructed at locations indicated by the Owner. Unless otherwise noted, tactile warning strips shall be constructed of exposed aggregate concrete.

**11. Expansion Joint material**

1. **Flat work**
   Expansion joints in flat work shall be formed using plastic, removable cap, "zip strips" by Contie (or approved substitute) in conjunction with flexible fiber expansion material. These joints shall be 1/2” wide and shall be caulked. Other widths of expansion joints must be approved or be specified by the Owner.

2. **Other work**
   Expansion joints requiring radii shall be 1/2” in width and shall be formed using dense foam. The top of this material shall have the top 1/2” scored for easily removal and then the joint caulked. Other widths of expansion joints must be approved or be specified by the Owner.
12. Sealant

Sealant shall be a one-part urethane and shall be either pour grade or gun grade. Sealant shall be Sika 1a. Substitutes by Tremco or Bostic are acceptable.

13. Water Repellent

The Contractor shall apply to the new concrete, after a minimum of a seven (7) day curing period, a 40% Silane solution as manufactured by Chemtrote or a substitute acceptable and approved by the Owner. The water repellent shall be applied by the manufacturer instructions.

14. Vapor Barrier

Vapor barrier shall be a polyethylene film of at least 6-mil thickness.

15. Pavers

Pavers shall be by Hanover Architectural Products or approved substitute. Owner shall approve color.

3.0 CONCRETE PROPERTIES

1. General

The consistency of the concrete shall be such as to produce a mixture that will work readily into the corners and angles of the forms and around reinforcement, but without permitting the materials to segregate or excess water to collect on the surface.

2. Testing

Slump tests and strength test may be randomly requested at the Owner's discretion.

1. An approved testing laboratory shall do testing. Distribution of test results shall be as directed by Owner. Contractor shall pay for testing.

The following ASTM Specification shall be followed:

Securing ------------------------ ASTM C 172
Making and Curing Specimens ------- ASTM C 31
Testing Specimens ------------------ ASTM C 39

2. During progress of work, when requested, at least one set of compression test specimens consisting of three (3) cylinders shall be made for each 50 cubic yards of concrete or major fraction thereof. One (1) specimen of each test will be broken at seven (7) days and other two at twenty-eight (28) days.

3. Average of three consecutive tests of laboratory-cured specimens representing each class of concrete shall be equal to 120% of specified strength, and not more than 10% of test shall have values less than specified strength. In no case shall a test be less than 90% of specified strength.

4. In the event that test results do not meet specification requirements, one or both of the following will be required at no cost to Owner.

a. Core boring test conforming to ASTM C-42

b. Load test in accordance with Chapter 2 of ACI 318.

5. In the event core-boring or load tests indicate that concrete does not conform to specifications, Contractor shall take such measures as Owner will prescribe or shall remove defective work as directed by Owner.

3. Final Mix Concrete

Unless otherwise specified, the mixed batch of concrete ready for have the following characteristics:
1. 4000 PSI minimum strength at 28 days (6½-bag mix)
2. Maximum water to cement ratio 0.50
3. Maximum fly ash 25% by volume
4. 6 percent air entrained by volume
5. Slump shall be 3"-4".
6. When concrete is to be poured at temperatures less than 40 degrees F, high heat of hydration Type IIIA cement shall be used.

   Note: With Owner approval, other methods of freeze protection may be applied.

4. Transporting and Delivery
   Concrete shall be delivered and discharged within 1½ hours or before the drum has revolved 300 times after:
   1. The introduction of water to the cement and aggregate or,
   2. Cement to the aggregate.

4.0 EXECUTION, STANDARD CONCRETE

1. General
   The purpose of this section is to outline the requirements for proper design and construction of concrete slabs, sidewalks, curbs, gutters, etc. on the UK Lexington campus.

2. Cement Concrete
   All concrete used in the construction of slabs, sidewalks, curbs, gutters, etc. shall meet the specifications listed elsewhere in this document.

3. Base preparation
   The slab, sidewalk, curbs, and sidewalk aprons, etc. shall be constructed on a prepared, compacted smooth sub-grade of uniform density formed by trenching or filling to the required elevation.
   1. Below Grade preparation
      Large boulders and ledge rock found in the sub-grade shall be removed to a minimum depth of 6 inches below the finished sub-grade elevation and the space shall be back filled with suitable material that shall then be thoroughly compacted by rolling or tamping.
   2. Slab/concrete base preparation
      1. Under exterior concrete unless otherwise specified, a bed of dense grade aggregate shall be placed and compacted to a minimum thickness of four inches.
      2. Under all interior floor slabs on earth, and as indicated on drawings install a 4" crushed rock fill. Rock shall be clean crushed limestone, (graded from ¾" to 1½" in diameter, spread evenly, tamped solid and brought to proper elevation for reception of concrete slab. Concrete shall be placed only after approval of grade and properly compacted subsurface.

4. Vapor Barrier
   1. Place vapor barrier membrane under all interior concrete floor slabs on grade.
Note: Take care not to penetrate membrane. If pipes and conduits make penetrations, seal such openings before concrete slab is poured.

2. At temperatures above 90 degrees F, a vapor barrier must be used under exterior concrete pours.

Note: This requirement does not eliminate the requirement for burlap and water curing and/or acceptable curing compounds.

5. Screeds

Screeds for floor slabs shall be steel pipe set on mounts placed on top of membrane.

6. Reinforcement

1. Detailing, fabricating and placing shall conform to American Concrete institute "Manual of Standard Practice for Detailing Reinforced Structures" (ACI-315).

2. Steel reinforcement shall be unpainted, free from loose rust, scale, or coatings that will reduce or destroy bond.

Note: Step tread nosing reinforcing rods shall be epoxy coated by the manufacturer for rust inhibition.

3. Steel reinforcement shall be accurately placed and secured by wiring and shall be supported by metal chairs, spacers, or hangers, to maintain it securely in place during placing of concrete. Annealed wire of not less than 16 guage, or suitable clips, shall be used for all fastenings and intersections. Steel reinforcement shall have a minimum protection of concrete on all sides as indicated.

4. Splices shall occur only as indicated unless written permission of Owner is obtained. Splices shall be securely tied in place.

5. Steel reinforcement shall include spacers, chairs, and ties, as required for properly placing and securing reinforcement.

7. Welded wire fabric

Unless otherwise specified, 6" x 6" – W1.4 x W1.4 (#10), Welded Wire Fabric, shall be placed within the forms in all slabs and shall conform to the shape of the forms in the flat horizontal plane. The WWF shall be overlapped a minimum of six inches, overlaps shall be wire tied, and shall lie flat within the formwork. Immediately after pouring, the fabric shall be pulled up to a point approximately in the middle of the slab.

8. Concrete Forming

The forms shall be of either metal or wood and shall be straight, free from warp, of sufficient strength to resist spring during construction, and of a height approximately equal to the depth of the slab, sidewalk, curb, sidewalk apron, etc. to be constructed. Wood forms shall have a minimum thickness of 1 1/2 inches. Metal forms shall be a type approved by the Owner and shall have a flat top surface. The forms shall be cleaned, well oiled, securely staked, braced, and held to the required line and grade before any concrete is deposited. The forms shall be set at such elevations that the sidewalk shall slope 1/4 inch per foot toward the roadway or other suitable drainage way and in general shall be above the adjacent grade to prevent ponding on the walkways by turf buildup.

Notes:

1. Wood forms used for 4-inch concrete slabs shall be 2x6 dimensional lumber. Tolerance for 4-inch slabs shall be -0" to +1/2".

2. Wood forms used for 6-inch concrete slabs shall be 2x8 dimensional lumber. Tolerance for 6-inch slabs shall be -0" to +1/2".

3. Forms for radii may be of ¼ inch Masonite or other material that will allow for a smooth and consistent radius. All radii shall terminate at tangent unless otherwise approved by the Owner.
9. **Placing Concrete**

1. Before placing concrete, Contract shall secure approval of bottoms of footings and slabs. Remove all loose earth in the bottom of the footing trench to Owner’s satisfaction.

2. Deposit concrete as nearly practicable in its final position to avoid segregation due to re-handling or flowing. Do not deposit partially hardened concrete or concrete that has been contaminated with foreign materials.

3. Concrete during and immediately after depositing shall be thoroughly compacted by means of spading, use of rods, tamping or vibrating and thoroughly worked into all corners or maximum density and presenting a smooth unbroken surface, free from coarse aggregate and honeycomb when forms are removed. *The Contractor shall take full responsibility for replacement of overly vibrated concrete.*

4. In general concrete shall be placed as follows:
   1. Within the required time for delivery
   2. Using methods so as to avoid the possibility of segregation or separation of the aggregates or the displacement of the reinforcement
   3. So as to entirely fill the form, but not to bulge or distort the forms or their alignment.
   4. As close to the final location/position as possible
   5. Using vibration, to insure that honeycombing is eliminated, and then only in moderation
   6. Removing water from all formwork before the concrete is deposited.

10. **Curing**

**Exterior Concrete**

Unless otherwise required by the Owner, concrete shall be cured for a period of not less than seven days after pouring. The method used to provide curing shall be approved by the Owner. Accepted curing compounds, membrane curing, plastic sheet curing, and wetted burlap curing will be considered satisfactory. Due to staining, straw applied directly to the concrete is not acceptable and is prohibited.

1. **Curing temperatures below 40 degrees F**

   Where possible, no concrete should be poured at temperatures below 40 degrees F. If at any time during the seven-day curing period, the air temperature is 40 degrees F. or less, the concrete shall be insulated and/or heated as directed by the Owner to aid curing and to prevent freezing. The Contractor at his expense shall replace any concrete damaged by not being protected. *In addition, Type IIIA cement shall be used to produce a high heat of hydration to improve curing under these conditions.*

2. **Curing temperatures above 90 degrees F**

   Concrete should not be poured when the temperature is expected to rise above 90 degrees at any time during the 7-day curing period. However, should concrete be poured at these temperatures, a vapor barrier shall be placed under the concrete and the concrete shall be moisture cured for the 7-day curing period. The Contractor at his expense shall replace any concrete damaged by not being properly cured.

3. **Protection from inclement weather**

   Protective covering which will protect the surface of freshly placed concrete from rain marking and/or erosion shall be readily available at the site of the work. Concrete damaged as a result of failure to be adequately protected by the Contractor from rain and erosion, shall be removed and replaced at the expense of the Contractor.
11. Form Removal

After the concrete has set sufficiently, the contractor shall remove the forms, rub the exterior exposed areas, and backfill the space on each side of the walk, curb, slab, etc. The earth shall be compacted and graded in a satisfactory manner. No honeycombing shall be allowed in exposed areas.

12. Slab Characteristics

Finish Exterior Slabs as follows:

Unless otherwise specified, the concrete shall be deposited between the forms on the moistened sub-grade, shall be struck off to a minimum 4-inch thickness (6-inch thickness with grade beams for driveways, or as specified) and shall be worked sufficiently to bring ample fines to the surface. By appropriate methods, the surface shall then be made smooth and even, given a broom finish and edges rounded with an edging tool to 1/4-inch radius. Concrete whose surface has been (1) overworked or (2) "seeded" with cement creating surfaces that spall within one year of placement shall be replaced by the Contractor at his expense. Exterior exposed areas shall be rubbed or broomed to present a finished appearance acceptable to the Owner.

13. Crack Control Joints

Unless otherwise indicated on the drawings, for sidewalks with a width of 8 feet or less, the surface shall be divided at intervals to match the width or as indicated on project drawings. For example, a four-foot wide sidewalk will have a crack control joint every four feet, creating a square area. For sidewalks with a width of greater than eight feet, the walk shall have crack control joints a minimum of every eight feet. When using a jointer, the jointer used shall have a radius of ½ inch and form a groove of not less than one inch in depth for the entire width of the walk. When replacing a section of concrete in an existing sidewalk, the new construction shall have the same characteristic distance between crack control joints and edge rounding. Selected jointer crack control joints shall then be sawed a minimum of 2” depth.

Note: Crack control joints may be sawed with the approval of the Owner or as indicated on drawings. Normal crack control joints shall be sawed to a minimum depth of ¾” with Owner selected joints or joints indicated on project drawings sawed to a minimum depth of 2.”

14. Expansion Joints

Unless otherwise indicated on the drawings, depending upon the width of the sidewalk, the contractor shall create expansion joints using zip strips in conjunction with non-asphalt, pre-molded, cane fiber, expansion material at intervals of between 40 and 52 feet including curbs, gutters, etc. After the concrete has cured sufficiently, the joints shall be cleaned so that a clean separation is formed between the slabs or other new concrete elements. The joint shall be primed and then sealed with urethane caulking. An expansion joint shall be constructed where new sidewalks, curbs, gutters, or other new concrete element is being constructed and abuts any rigid structure or fixture such as curbs, columns, castings, building, light standards, etc. Dense foam shall be used for forming expansion joints for radii.

15. Tactile Warnings on Walking Surfaces

When required by the Owner, tactile warning textures shall contrast with that of the surrounding surface. These texture differences shall be created where a sidewalk leads to stairs or where the walk crosses or adjoins a frequently used vehicular way. Project drawings will indicate locations and configurations. Tactile warning strips shall be isolated from the surrounding steps, aprons, etc. using 1/2-inch expansion joints and be pinned as described elsewhere in this document.

16. Replacing Old Concrete

Old concrete to be removed (slabs, walks, etc.) shall be removed in sections between crack control joints. A sawed joint perpendicular to the surface of the concrete shall be used to separate the concrete to be removed from the remaining concrete. All jagged, cracked, and out of square joints shall be squared by sawing prior to forming and pinning for the new concrete.

Note: The contractor shall be responsible for all collateral damage to concrete that is to remain and will be required to remove and replace all such damaged concrete at his own expense.
17. Pinning

In the case of replacing a section of concrete, the new section of concrete shall be pinned to the old section or any rigid structure or fixture such as curbs, columns, castings, building, light standards, etc. which abuts the walk. Pins shall be similarly used in new concrete walks, curbs, gutters, etc.

The pins (dowels) shall consist of #4 (1/2-inch) reinforcing bars approximately 9 inches long. The bars shall be placed into the vertical edge of the remaining concrete that will abut the new concrete. The bars shall be placed approximately half of their length (4 1/2 inches into the old concrete leaving the remainder exposed). A 5-inch section of 3/4 PVC tubing shall be slipped over one half of the dowel pin with the open end sealed with urethane caulk or duct tape to prevent entry of cement into the tube. The tube is to provide for expansion and contraction. The pins shall be a minimum of 6 inches in from the outside edges of the concrete slab. See following table.

The following table shall determine the number of pins:

<table>
<thead>
<tr>
<th>Width of Sidewalk</th>
<th>Minimum Number of Pins</th>
</tr>
</thead>
<tbody>
<tr>
<td>2'-0&quot; to 4'-0&quot;</td>
<td>2</td>
</tr>
<tr>
<td>4'-1&quot; to 6'-0&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Greater than 6'-0:&quot;</td>
<td>1 pin every 2 feet</td>
</tr>
<tr>
<td></td>
<td>For curb to sidewalk: 1 pin every 3 feet</td>
</tr>
</tbody>
</table>

18. Finished Concrete

All finished concrete shall meet the approval of the Owner or be replaced by the contractor at no additional cost to the Owner.

NOTE: The Contractor is responsible to prevent graffiti being scratched into the new concrete. The Contractor at his expense shall replace all such concrete.

19. Owner Inspection Prior to Pour

1. Do not place concrete over pipes or conduit, until such work has been inspected and approved.

2. Do not deposit concrete until Owner has inspected forms and placing of steel reinforcement and given permission to place concrete.

3. All concrete placed in violation of these provisions will be rejected and removed.

20. Water Repellent

After a minimum of a 7-day curing period, the Contractor shall apply to the new concrete, a 40% Silane solution as manufactured by Chemtrete or a substitute acceptable and approved by the Owner. The water repellent shall be applied by the manufacturer instructions.

5.0 EXECUTION, WASHED AGGREGATE CONCRETE

1. General

The purpose of this section is to provide specifications for constructing or replacing washed (exposed) aggregate walkways, sidewalks, plazas, driveways etc. All previous sections shall apply to this section as it relates to materials, forming, placing, and finishing concrete.

2. Cement Concrete

All concrete used in the construction of the washed aggregate walkways, sidewalks, plazas, driveways, etc. shall meet the specifications listed under "Material" of these specifications.
3. **Washed Aggregate Concrete**

The concrete that will become the finished surface shall be standard sidewalk concrete as described elsewhere in these specifications and mixed with "Pea Gravel/Creek Gravel" aggregate. The finished product shall match adjacent washed aggregate concrete already in place.

**NOTES:**
1. Exposed aggregate concrete with excessive fines in the surface will be rejected. It is suggested that graded and screened aggregate be used in the concrete mix. Should excessive fines or an unacceptable surface texture be determined, the Contractor will be allowed to use a high-pressure water spray to attempt to provide an acceptable surface. Should this fail, the concrete shall be replaced.

2. The Concrete SHALL NOT be seeded with "Pea Gravel/Creek Gravel" after it has been placed. Such concrete shall be replaced at the contractor’s expense.

3. The University of Kentucky specified type gravel and gradation is attached to this specification.

4. **Welded Wire Mesh**

6" X 6" W1.4 x W1.4 (#10) Welded Wire Mesh shall be placed evenly within the form and installed as described elsewhere in these specifications.

5. **Crack Control Joints**

Control joints shall be installed as described elsewhere in these specifications.

6. **Expansion Joints**

Expansion joints shall be installed as described elsewhere in these specifications.

7. **Surface Retarder**

1. Immediately after pouring, the surface of the proposed aggregate concrete shall be sprayed with a curing retarder similar to Expose by Kaufman Products. After the appropriate amount of time, the surface of the concrete shall be washed with water to produce a washed aggregate surface.

2. Maximum penetration and exposure of gravel shall be ¼".

3. Exposed aggregate concrete shall be washed using a cleaner such as Sure Klean 600 Detergent to remove retarder stains from the finished concrete prior to application of surface applied waterproofing.

8. **Finished Concrete**

All finished washed exposed aggregate concrete must meet the approval of the Owner or be replaced at the Contractor's expense.

**NOTE:** The Contractor is responsible to prevent graffiti being scratched into the new concrete.

The Contractor at his expense shall replace all such concrete.

### 6.0 SITE CLEAN UP AND FINAL PAYMENT

1. **Site Clean Up**

The Contractor shall be responsible to return the site to the condition in which he found it. This will include replacement or repairs to all physical properties and landscaping to original condition. To identify existing conditions, it will be the responsibility of the Contractor to conduct, with the Owner, a walk around of the site prior to the commencement of work.
2. Inspection and Final Payment

1. Upon completion of the project, the project shall be thoroughly inspected by the Contractor and the Owner. The Contractor shall correct any and all deficiencies found by this inspection.

2. After identified deficiencies have been repaired, a re-inspection shall be done to insure that the deficiencies have been corrected. Final payment shall be made upon satisfactory completion of this paragraph (2. INSPECTION AND PAYMENT A and B) and the site(s) satisfactorily returned to its (their) original state.

3. The contractor shall guarantee all concrete against spall for two years and all concrete work for one year for other deficiencies.

END OF SPECIFICATIONS
## UNIT PRICE CONTRACT

### CONCRETE, MASONRY, DRAINAGE & LISTED MISCELLANEOUS ITEMS

<table>
<thead>
<tr>
<th>ITEM No.</th>
<th>DESCRIPTION</th>
<th>QUAN</th>
<th>UNIT</th>
<th>UNIT BID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Concrete

1. **Admixtures**
   - Contractor shall quote on the following adders to the basic cubic yard of ready mixed and, delivered concrete.
   - **1a** Bonding Admixtures
   - **1b** Coloring Agents
   - **1c** Superplasticizers Type I
   - **1d** Antifreeze agent (non-chlorine)
   - **1e** Curing Agents (Sodium Silicates only)
   - **1f** Accelerant

2. **Apron, driveway (steel & WWM reinforced)**
   - Six inch thick, 5000psi concrete with #4 rebar and WWM reinforcement; includes all materials and work operations (expansion joint material, pinning, cleaning, priming of expansion joints prior to caulking, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed walkway. Separate pricing is in order for expansion joints, pinning, and caulking to existing adjacent appurtenances that are not a part of connecting walks and/or drives. Sawing of old concrete is a separate item. Slab tolerance: -0" to +1/2"
   - **2a** Apron installed integral with walkway (bid on an apron 20 feet wide by 20 feet long)
   - **2b** Unit price per square foot for larger aprons, length and/or width

3. **Concrete, High Strength, 5000psi**
   - Substitute 5000psi concrete in lieu of standard 4000 psi concrete.
   - **3a** 5000psi unit cost in lieu of 4000psi, add per CY

4. **Concrete, Type III-A (high early strength)**
   - High early strength concrete capable of attaining full design strength in 72 hours. Increase in material cost over the cost of standard concrete
   - **4a** Add to CY cost of 4000 psi standard concrete for 4000 psi high early strength concrete
   - **4b** Add to CY cost of 4000 psi standard concrete for 5000 psi high early strength concrete
### 5 Curb and Gutter (steel reinforced)

Includes asphalt pavement repair, removal and disposal of generated debris, finished grading, all necessary work for a complete job as measured along longitudinal axis of the work (expansion joint material, pinning, cleaning, **priming of expansion joints prior to caulking**, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed curb and gutter section. Separate pricing is in order for pinning and caulking to existing adjacent appurtenances. Sawing of old concrete is a separate item. See Construction Details.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 a</td>
<td>New 4000 psi broomed surface concrete</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>5 b</td>
<td>New 4000 psi exposed aggregate concrete</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>5 c</td>
<td>Replace w/4000 psi broomed surface concrete</td>
<td>200</td>
<td>LF</td>
</tr>
<tr>
<td>5 d</td>
<td>Replace w/4000 psi exposed aggregate concrete</td>
<td>200</td>
<td>LF</td>
</tr>
</tbody>
</table>

### 6 Demolition and disposal

Demo and dispose of concrete not required by other line items in this document.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 a</td>
<td>Demo and dispose of concrete</td>
<td>100</td>
<td>CY</td>
</tr>
</tbody>
</table>

### 7 Dowel Pin (pinning) installation

Dowel Pin (pinning) installation (other than those required by other line items in this document), drilled

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 a</td>
<td>Dowel Pin (pinning) installation</td>
<td>500</td>
<td>Each</td>
</tr>
</tbody>
</table>

Dowel Pin installation (other than those required by other line items in this document), no drilling req'd.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 b</td>
<td>Dowel Pin installation</td>
<td>500</td>
<td>Each</td>
</tr>
</tbody>
</table>

### 8 Expansion Joints

Expansion joint, brushing, cleaning, priming, & caulking. Work site or group of work sites--

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 a</td>
<td>Requiring less than 1/2 day labor</td>
<td>5,000</td>
<td>LF</td>
</tr>
<tr>
<td>8 b</td>
<td>Requiring 1/2 day labor or more</td>
<td>5,000</td>
<td>LF</td>
</tr>
</tbody>
</table>

### 9 Expansion Joint material only

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 a</td>
<td>1/2&quot; Zip-Strip cap with cane fiber filler</td>
<td>4,000</td>
<td>LF</td>
</tr>
<tr>
<td>9 b</td>
<td>Dense foam slit for removal of the top 1/2&quot; portion</td>
<td>2,000</td>
<td>LF</td>
</tr>
<tr>
<td>9 c</td>
<td>Gasless foam rod of appropriate diameter to fill the expansion gap.</td>
<td>500</td>
<td>LF</td>
</tr>
</tbody>
</table>

### 10 Grade Beams (steel reinforced)

Grade Beams, 4000psi concrete, 6"x 8", reinforced with one #4 bar; place under walks and slabs at Owner designated locations; generally as part walkway. See Construction Details.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Install grade beam to support sidewalk or other element</td>
<td>500</td>
<td>LF</td>
</tr>
</tbody>
</table>
Handicap Ramp, (WWM reinforced), in 4-inch sidewalk

Includes removal and disposal of debris complete with finished grading; includes all materials and work operations in the longitudinal run (expansion joint material, pinning, cleaning, priming of expansion joints prior to caulking, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed handicap code compliant ramp. Pinning, expansion joints, and caulking to existing adjacent appurtenances is separate. Sawing of old concrete is separate item. Slab tolerance: -0" to +1/2"

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>a</td>
<td>HC panel, broomed finish, 4000psi, Up to 36 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>b</td>
<td>HC panel, broomed finish, 4000psi, 36 - 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>c</td>
<td>HC panel, broomed finish, 4000psi, over 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>d</td>
<td>HC panel, exposed aggregate conc, 4000psi, Up to 36 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>e</td>
<td>HC panel, exposed aggregate conc, 4000psi, 36 - 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>f</td>
<td>HC panel, exposed aggregate concrete, 4000psi, over 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>g</td>
<td>HC panel, ADA tactile inset, 4000psi, over 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>h</td>
<td>HC panel, ADA tactile inset, 4000psi, Up to 36 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>i</td>
<td>HC panel, ADA tactile inset, 4000psi, 36 - 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>j</td>
<td>HC panel, Hanover paver brick panel inset, 4000psi, Up to 36 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>k</td>
<td>HC panel, Hanover paver brick panel inset, 4000psi, 36 - 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>11</td>
<td>l</td>
<td>HC panel, Hanover paver brick panel inset, 4000psi, over 64 SF</td>
<td>500 SF</td>
</tr>
</tbody>
</table>

Handicap Ramp, (WWM reinforced), in 6-inch sidewalk

Includes removal and disposal of debris complete with finished grading; includes all materials and work operations in the longitudinal run (expansion joint material, pinning, cleaning, priming of expansion joints prior to caulking, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed handicap code compliant ramp. Separate pricing is in order for expansion joints, pinning, and caulking to existing adjacent appurtenances. Sawing of old concrete is a separate item. Slab tolerance: -0" to +1/2"

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>a</td>
<td>HC panel, broomed finish, 4000psi, Up to 36 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>b</td>
<td>HC panel, broomed finish, 4000psi, 36 - 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>c</td>
<td>HC panel, broomed finish, 4000psi, over 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>d</td>
<td>HC panel, exposed aggregate conc, 4000psi, Up to 36 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>e</td>
<td>HC panel, exposed aggregate conc, 4000psi, 36 - 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>f</td>
<td>HC panel, exposed aggregate concrete, 4000psi, over 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>g</td>
<td>HC panel, ADA tactile inset, 4000psi, over 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>h</td>
<td>HC panel, ADA tactile inset, 4000psi, Up to 36 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>i</td>
<td>HC panel, ADA tactile inset, 4000psi, 36 - 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>j</td>
<td>HC panel, Hanover paver brick panel inset, 4000psi, over 64 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>k</td>
<td>HC panel, Hanover paver brick panel inset, 4000psi, Up to 36 SF</td>
<td>500 SF</td>
</tr>
<tr>
<td>12</td>
<td>l</td>
<td>HC panel, Hanover paver brick panel inset, 4000psi, 36 - 64 SF</td>
<td>500 SF</td>
</tr>
</tbody>
</table>
### 13 Header Curb (steel reinforced)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 a</td>
<td>New 4000 psi broomed surface concrete</td>
<td>LF</td>
<td>500</td>
</tr>
<tr>
<td>13 b</td>
<td>New 4000 psi exposed aggregate concrete</td>
<td>LF</td>
<td>500</td>
</tr>
<tr>
<td>13 c</td>
<td>Replace w/4000 psi broomed surface concrete</td>
<td>LF</td>
<td>200</td>
</tr>
<tr>
<td>13 d</td>
<td>Replace w/4000 psi exposed aggregate concrete</td>
<td>LF</td>
<td>200</td>
</tr>
</tbody>
</table>

### 14 Imprinting

Casting and imprinting concrete walks and patios with appearance of brick, stone, etc. complete with color selection by the Owner. This quote will be an adder to the 4-inch and 6-inch broomed finish concrete listed elsewhere in this document.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 a</td>
<td>Brick imprint w/color, CY adder</td>
<td>SF</td>
<td>500</td>
</tr>
<tr>
<td>14 b</td>
<td>Stone imprint w/color, CY adder</td>
<td>SF</td>
<td>500</td>
</tr>
<tr>
<td>14 c</td>
<td>Tile imprint w/color, CY adder</td>
<td>SF</td>
<td>500</td>
</tr>
<tr>
<td>14 d</td>
<td>Slate imprint w/color, CY adder</td>
<td>SF</td>
<td>500</td>
</tr>
</tbody>
</table>

### 15 Reinforcement, Steel Rebar and Welded Wire Mesh

Reinforcement other than that required by other line items in this document.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 a</td>
<td>Uncoated Grade 60 reinforcing bars, #6 and smaller</td>
<td>LB</td>
<td>200</td>
</tr>
<tr>
<td>15 b</td>
<td>Uncoated #6 reinforcing bars and larger</td>
<td>LB</td>
<td>200</td>
</tr>
<tr>
<td>15 c</td>
<td>GFRP #6 reinforcing bars and larger</td>
<td>LB</td>
<td>200</td>
</tr>
<tr>
<td>15 d</td>
<td>Factory epoxy coated #4 reinforcing bars for step nosing</td>
<td>LB</td>
<td>200</td>
</tr>
<tr>
<td>15 e</td>
<td>GFRP #4 reinforcing bars for step nosing</td>
<td>LB</td>
<td>200</td>
</tr>
<tr>
<td>15 f</td>
<td>Welded wire mesh 6x 6 W1.4 x W1.4</td>
<td>SF</td>
<td>500</td>
</tr>
</tbody>
</table>

### 16 Saw cuts

Saw cut in concrete, curb, or asphalt required for removal and/or trimming of existing asphalt, walk, curb, or slab

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 a</td>
<td>1/2&quot; to 2&quot; depth saw cuts for trimming, scoring, and/or crack control joints</td>
<td>LF</td>
<td>100</td>
</tr>
<tr>
<td>16 b</td>
<td>4&quot; depth saw cuts for demolition</td>
<td>LF</td>
<td>100</td>
</tr>
<tr>
<td>16 c</td>
<td>6&quot; depth saw cuts for demolition</td>
<td>LF</td>
<td>100</td>
</tr>
</tbody>
</table>

### 17 Slabs, Interior concrete, (WWM reinforcement)

Includes removal and disposal of debris, preparation of grade, installation of #57 sub-stone, PVC vapor barrier, placement and finishing of 4000 psi concrete to include finish with trowel machine er. Includes 6x6-10/10 WWM reinforcement.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 a</td>
<td>4 inch slab</td>
<td>SF</td>
<td>1,000</td>
</tr>
<tr>
<td>17 b</td>
<td>6 inch slab</td>
<td>SF</td>
<td>1,000</td>
</tr>
<tr>
<td>17 c</td>
<td>4 inch finished slab, all prep work by others</td>
<td>SF</td>
<td>1,000</td>
</tr>
<tr>
<td>17 d</td>
<td>6 inch finished slab, all prep work by others</td>
<td>SF</td>
<td>1,000</td>
</tr>
<tr>
<td>18</td>
<td>Spread footing (steel reinforced)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>---------------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>18</td>
<td>a Place and finish footing; 4000 PSI, reinforced with #4 grade 60 reinforcing. See construction details.</td>
<td>500</td>
<td>CF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>19</th>
<th>Steps, new construction, (steel reinforced)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>a Steel reinforced, cast in place steps including removal and disposal of generated debris. Includes finish grading; includes factory epoxy coated nosing reinforcement; Unit measurement is per square foot of tread. Includes all materials and work operations (expansion joint material, pinning, cleaning, priming of expansion joints prior to caulking, caulking, control joint sawing or tooling, waterproofing, etc. in the linear run) for a complete new set of steps. Pinning and/or caulking to existing adjacent appurtenances, sawing of old concrete, and handrails are not included.</td>
<td>500</td>
<td>SF</td>
</tr>
<tr>
<td>19</td>
<td>b 4000 psi broomed surface concrete</td>
<td>500</td>
<td>SF</td>
</tr>
<tr>
<td>19</td>
<td>b 4000 psi exposed aggregate concrete</td>
<td>500</td>
<td>SF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20</th>
<th>Steps, overlay of existing steps (steel reinforced)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>a Steel reinforced (#5 each way) cast-in-place steps over existing stair, including removal and disposal of generated debris. Includes all materials and labor including finish grading, factory epoxy coated nosing reinforcement, expansion joint material, pinning, cleaning, priming of expansion joints prior to caulking, caulking, control joint sawing or tooling, waterproofing, etc. in the linear run) for a complete new set of steps. Pinning and/or caulking to existing adjacent appurtenances, sawing of old concrete, and handrail work is not included. Unit measurement is per Square Foot of tread.</td>
<td>500</td>
<td>SF</td>
</tr>
<tr>
<td>20</td>
<td>b 4000 psi broomed surface concrete</td>
<td>500</td>
<td>SF</td>
</tr>
<tr>
<td>20</td>
<td>b 4000 psi exposed aggregate concrete</td>
<td>500</td>
<td>SF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>21</th>
<th>Steps, remove existing steps, pour new steps, (steel reinforced)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>a Steel reinforced, cast in place steps including removal and disposal of generated debris. Includes finish grading; includes factory epoxy coated nosing reinforcement; Unit measurement is per square foot of tread. Includes all materials and work operations (expansion joint material, pinning, cleaning, priming of expansion joints prior to caulking, caulking, control joint sawing or tooling, waterproofing, etc. in the linear run) for a complete new set of steps. Pinning and/or caulking to existing adjacent appurtenances, sawing of old concrete, and handrails are not included.</td>
<td>500</td>
<td>SF</td>
</tr>
<tr>
<td>21</td>
<td>b Replace w/4000 psi broomed surface concrete</td>
<td>500</td>
<td>SF</td>
</tr>
<tr>
<td>21</td>
<td>b Replace w/4000 psi exposed aggregate concrete</td>
<td>500</td>
<td>SF</td>
</tr>
</tbody>
</table>
## Walk, 4" by 4' (WWM reinforced) with monolithic curb

Includes specified tooled or sawed longitudinal crack control joint to simulate curb; includes all materials and work operations in the longitudinal run (expansion joint material, pinning, cleaning, **priming of expansion joints prior to caulking**, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed walkway. Separate pricing is in order for expansion joints, pinning, and caulking to existing adjacent appurtenances. Sawing of old concrete is a separate item. Slab tolerance: -0" to +1/2" - See Construction Details.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>New 4000 psi broomed surface concrete</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>22</td>
<td>New 5000 psi broomed surface concrete</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>22</td>
<td>New 4000 psi exposed aggregate concrete</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>22</td>
<td>Replace w/4000 psi broomed surface concrete</td>
<td>200</td>
<td>LF</td>
</tr>
<tr>
<td>22</td>
<td>Replace w/5000 psi broomed surface concrete</td>
<td>200</td>
<td>LF</td>
</tr>
<tr>
<td>22</td>
<td>Replace w/4000 psi exposed aggregate concrete</td>
<td>200</td>
<td>LF</td>
</tr>
<tr>
<td>22</td>
<td>Replace w/5000 psi exposed aggregate concrete</td>
<td>200</td>
<td>LF</td>
</tr>
<tr>
<td>22</td>
<td>Each added 1' width of broomed surface walk</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>22</td>
<td>Each added 1' width of exposed aggregate walk</td>
<td>500</td>
<td>LF</td>
</tr>
</tbody>
</table>

## Walk, 6" by 6' (WWM reinforced) with monolithic curb

Includes specified tooled or sawed longitudinal crack control joint to simulate curb; includes all materials and work operations in the longitudinal run (expansion joint material, pinning, cleaning, **priming of expansion joints prior to caulking**, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed walkway. Separate pricing is in order for expansion joints, pinning, and caulking to existing adjacent appurtenances. Sawing of old concrete is a separate item. Slab tolerance: -0" to +1/2" - See Construction Details. Adder cost will also be used as subtractor for less than 6 feet wide walks.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>New 4000 psi broomed surface concrete</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>23</td>
<td>New 5000 psi broomed surface concrete</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>23</td>
<td>New 4000 psi exposed aggregate concrete</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>23</td>
<td>Replace w/4000 psi broomed surface concrete</td>
<td>200</td>
<td>LF</td>
</tr>
<tr>
<td>23</td>
<td>Replace w/5000 psi broomed surface concrete</td>
<td>200</td>
<td>LF</td>
</tr>
<tr>
<td>23</td>
<td>Replace w/4000 psi exposed aggregate concrete</td>
<td>200</td>
<td>LF</td>
</tr>
<tr>
<td>23</td>
<td>Replace w/5000 psi exposed aggregate concrete</td>
<td>200</td>
<td>LF</td>
</tr>
<tr>
<td>23</td>
<td>Each added 1' width of broomed surface walk</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>23</td>
<td>Each added 1' width of exposed aggregate walk</td>
<td>500</td>
<td>LF</td>
</tr>
</tbody>
</table>

## Walk or driveway, four inch (WWM reinforced)

Includes removal and disposal of debris complete with finished grading; includes all materials and work operations in the longitudinal run (expansion joint material, pinning, cleaning, **priming of expansion joints prior to caulking**, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed walkway. Separate pricing is in order for expansion joints, pinning, and caulking to existing adjacent appurtenances. Sawing of old concrete is a separate item. Slab tolerance: -0" to +1/2" - See Construction Details.
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>a</td>
<td>New 4000 psi broomed surface concrete 2,000 SF</td>
</tr>
<tr>
<td>24</td>
<td>b</td>
<td>New 5000 psi broomed surface concrete 1,000 SF</td>
</tr>
<tr>
<td>24</td>
<td>c</td>
<td>New 4000 psi exposed aggregate concrete 2,000 SF</td>
</tr>
<tr>
<td>24</td>
<td>d</td>
<td>New 5000 psi exposed aggregate concrete 1,000 SF</td>
</tr>
<tr>
<td>24</td>
<td>e</td>
<td>Replace w/4000 psi broomed surface concrete 1,000 SF</td>
</tr>
<tr>
<td>24</td>
<td>f</td>
<td>Replace w/5000 psi broomed surface concrete 500 SF</td>
</tr>
<tr>
<td>24</td>
<td>g</td>
<td>Replace w/4000 psi exposed aggregate concrete 1,000 SF</td>
</tr>
<tr>
<td>24</td>
<td>h</td>
<td>Replace w/5000 psi exposed aggregate concrete 500 SF</td>
</tr>
</tbody>
</table>

### 25 Walk or driveway, six inch (WWM reinforced)

Includes removal and disposal of debris complete with finished grading; includes all materials and work operations along the longitudinal run (expansion joint material, pinning, cleaning, priming of expansion joints prior to caulking, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed walkway. Separate pricing will apply for expansion joints, pinning, and caulking new concrete to existing adjacent appurtenances. Sawing of concrete to allow removal is a separate item. Slab tolerance: -0" to +1/2" - See Construction Details

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>a</td>
<td>New 4000 psi broomed surface concrete 2,000 SF</td>
</tr>
<tr>
<td>25</td>
<td>b</td>
<td>New 5000 psi broomed surface concrete 1,000 SF</td>
</tr>
<tr>
<td>25</td>
<td>c</td>
<td>New 4000 psi exposed aggregate concrete 2,000 SF</td>
</tr>
<tr>
<td>25</td>
<td>d</td>
<td>New 5000 psi exposed aggregate concrete 1,000 SF</td>
</tr>
<tr>
<td>25</td>
<td>e</td>
<td>Replace w/4000 psi broomed surface concrete 1,000 SF</td>
</tr>
<tr>
<td>25</td>
<td>f</td>
<td>Replace w/5000 psi broomed surface concrete 500 SF</td>
</tr>
<tr>
<td>25</td>
<td>g</td>
<td>Replace w/4000 psi exposed aggregate concrete 1,000 SF</td>
</tr>
<tr>
<td>25</td>
<td>h</td>
<td>Replace w/5000 psi exposed aggregate concrete 500 SF</td>
</tr>
</tbody>
</table>

### 26 Wall, Cast-in-place, 6” thick (steel reinforced)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>a</td>
<td>2-6' tall on spread footer; 4000 PSI, reinforced with #4 grade 60 reinforcing. (Spread footer separate). See Construction Details. 500 CF</td>
</tr>
<tr>
<td>26</td>
<td>b</td>
<td>6-10’ tall on spread footer; 4000 PSI, reinforced with #4 grade 60 reinforcing. (Spread footer separate). See Construction Details. 250 CF</td>
</tr>
</tbody>
</table>

### 27 Wall, Cast-in-place, 8” thick (steel reinforced)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>a</td>
<td>2-6’ tall on spread footer; 4000 PSI, reinforced with #4 grade 60 reinforcing. (Spread footer separate). See Construction Details. 500 CF</td>
</tr>
<tr>
<td>27</td>
<td>b</td>
<td>6-10’ tall on spread footer; 4000 PSI, reinforced with #4 grade 60 reinforcing. (Spread footer separate). 250 CF</td>
</tr>
</tbody>
</table>

### Masonry

#### 28 Concrete Block Wall Construction and/or Repair

Concrete Block wall. (Spread footing separate). No slushing of cores unless noted. Includes wall ties and galvanized lattice-type reinforcement.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>a</td>
<td>8 inch CMU's (up to 200 units) 400 EA</td>
</tr>
<tr>
<td>28</td>
<td>b</td>
<td>8 inch CMU's (Greater than 200 units) 400 EA</td>
</tr>
<tr>
<td>28</td>
<td>c</td>
<td>12 inch CMU's (up to 200 units) 400 EA</td>
</tr>
<tr>
<td>28</td>
<td>d</td>
<td>12 inch CMU's Greater than 200 units) 400 EA</td>
</tr>
<tr>
<td>28</td>
<td>e</td>
<td>Slush 8” cores w/concrete, no rebar; add: 250 EA</td>
</tr>
<tr>
<td>28</td>
<td>f</td>
<td>Slush 12” cores w/concrete, no rebar; add: 250 EA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Description</td>
</tr>
<tr>
<td>----</td>
<td>----</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>28</td>
<td>g</td>
<td>Reinforce alternate cores (8&quot; or 12&quot; CMU) w/#4 rebar, add per block:</td>
</tr>
<tr>
<td>28</td>
<td>h</td>
<td>Apply troweled on polymer modified bitumen waterproofing, 60 mil, and apply protection board.</td>
</tr>
<tr>
<td>29</td>
<td></td>
<td><strong>Brick Wall Construction and/or Repair</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brick veneer on concrete or CMU backup, tooled and cleaned. Footing or backup NIC). Includes wall ties. Brick supplied by Owner.</td>
</tr>
<tr>
<td>29</td>
<td>a</td>
<td>Brick wall construction, &gt;100 SF</td>
</tr>
<tr>
<td>29</td>
<td>b</td>
<td>Brick wall repair, &lt;100 SF</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td><strong>Natural Stone Wall Construction and/or Repair</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Natural stone wall construction and/or repair including brushed or &quot;grapevine&quot; mortar joints.(Spread footer separate). Stone supplied by Owner.</td>
</tr>
<tr>
<td>30</td>
<td>a</td>
<td>Greater than 100SF</td>
</tr>
<tr>
<td>30</td>
<td>b</td>
<td>100 SF or less</td>
</tr>
<tr>
<td>31</td>
<td></td>
<td><strong>Manufactured Stone Wall Construction and/or Repair</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Synthetic (manufactured) stone wall construction and/or repair. Install stone veneer on concrete or CMU backup, tooled and cleaned. Footing and/or backup are separate. Includes anchorage (wall ties, etc). as required. Stone and mastic supplied by Owner (similar to Eldorado or Cultured Stone Corp).</td>
</tr>
<tr>
<td>31</td>
<td>a</td>
<td>Limestone wall veneer; foundation &amp; backup separate, &gt;100SF</td>
</tr>
<tr>
<td>31</td>
<td>b</td>
<td>Limestone wall veneer repair, &lt;100 SF</td>
</tr>
<tr>
<td>32</td>
<td></td>
<td><strong>Tuckpointing</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grinding existing joints to 3/4 inch depth and installing new matching mortar, incl. cleaning the brick.</td>
</tr>
<tr>
<td>32</td>
<td>a</td>
<td>Tuckpointing, standard size brick</td>
</tr>
<tr>
<td>33</td>
<td></td>
<td><strong>Door Frame installation</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Includes labor and material to install a breakdown metal doorframe in an existing wall any depth. Owner will supply the door frame.</td>
</tr>
<tr>
<td>33</td>
<td>a</td>
<td>Installed in stud and gypboard wall</td>
</tr>
<tr>
<td>33</td>
<td>b</td>
<td>Installed in masonry material wall</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Drainage</strong></td>
</tr>
<tr>
<td>34</td>
<td></td>
<td><strong>Catch Basin; cast-in-place</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Includes blacktop cutting and repair, removal and disposal of generated debris, finished grading and all curb cutting and replacement. Includes all materials and work operations (expansion joint material, pinning, cleaning, priming of expansion joints prior to caulking, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed catch basin.</td>
</tr>
<tr>
<td>34</td>
<td>a</td>
<td>Catch basin under sidewalk with curb inlet and manhole cover</td>
</tr>
<tr>
<td>34</td>
<td>b</td>
<td>Catch basin constructed in gutter complete with grate &amp; frame</td>
</tr>
</tbody>
</table>
### Precast area drains with grill

Includes removal and disposal of generated debris, finished grading and any blacktop cutting, curb cutting and replacement. Includes all materials and work operations (expansion joint material, pinning, cleaning, priming of expansion joints prior to caulking, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed area drain installation. UG piping not included.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>a 12 inch square box w/grill</td>
<td>5</td>
<td>Each</td>
</tr>
<tr>
<td>35</td>
<td>b 18 inch square box w/grill</td>
<td>5</td>
<td>Each</td>
</tr>
<tr>
<td>35</td>
<td>c 24 inch square box w/grill</td>
<td>5</td>
<td>Each</td>
</tr>
<tr>
<td>35</td>
<td>d 36 inch square box w/grill</td>
<td>5</td>
<td>Each</td>
</tr>
</tbody>
</table>

### Storm Drainage Piping

UG Drain Pipe for use with Catch Basins, Area Drains, Trench Drains, and other UG uses. Includes excavation, removal and hauling of debris, placement, and stone and topsoil backfill, and finish grading.

#### Plastic Pipe Schedule 40

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>a 6-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>36</td>
<td>b 8-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>36</td>
<td>c 10-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>36</td>
<td>d 12-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
</tbody>
</table>

#### Plastic ADS Drainage Pipe Ty N-12 WT w/corrugated wall & smooth interior

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>i 4-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>36</td>
<td>j 6-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>36</td>
<td>k 8-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>36</td>
<td>l 10-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>36</td>
<td>m 12-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
</tbody>
</table>

#### Plastic ADS Drainage Single Wall Corrugated Pipe

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>s Perforated 4-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
<tr>
<td>36</td>
<td>t Perforated 6-inch diameter placed at a depth of 3' or less</td>
<td>500</td>
<td>LF</td>
</tr>
</tbody>
</table>

### PVC Area Drain

- 4” ADS Area Drain: 20 EA
- 6” ADS Area Drain: 15 EA
- 8” ADS Area Drain: 10 EA
### Concrete pipe

| 36 | dd  | 4" PVC area drain | 20 | EA |
| 36 | ee  | 6" PVC area drain | 15 | EA |
| 36 | ff  | 8" PVC area drain | 10 | EA |
| 36 | gg  | 10" PVC area drain | 5  | EA |
| 36 | hh  | 12" PVC area drain | 5  | EA |

#### Trench Drain System

| 37 | a   | Includes any blacktop, concrete and/or curb cutting and replacement and/or repair, removal and disposal of generated debris, and finished grading. Includes all materials and work operations (expansion joint material, pinning, cleaning, priming of expansion joints prior to caulking, caulking, control joint sawing or tooling, waterproofing, etc.) to provide a completed trench drain system. UG pipe extension to UG storm system not included. |
| 37 | b   | Polydrain System with bolt down galvanized grill to match campus standard | 100 | LF |
| 37 | c   | Polydrain System with bolt down brass grill to match campus standard | 100 | LF |
| 37 | d   | Cast-in-place trough w/cast iron grate traffic rated 12" W x 8"D | 100 | LF |
| 37 | e   | Cast-in-place trough w/cast iron grate traffic rated 12"W x 12"D | 100 | LF |
| 37 | f   | Cast-in-place trough w/cast iron grate traffic rated 12"W x 18"D | 100 | LF |

### Asphalt

#### Asphalt surface repairs only

| 38 | a   | 1-inch depth for surface application | 500 | LF |
| 38 | b   | 2-inch depth for surface application | 500 | LF |

#### Milling (surface preparation)

<p>| 39 | a   | 1-inch depth for surface application | 500 | LF |
| 39 | b   | 2-inch depth for surface application | 500 | LF |</p>
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
</table>
| 40 | Petrotac crack-control roadway fabric | Application of Petrotac crack-control fabric over existing cracks in asphalt pavement etc. and/or locations where old asphalt is married to new asphalt prior to asphalt application to prevent reflective cracking; one-foot wide material.  
Install Petrotac in accordance with mfg. recommended procedure. 100 SF |
| 41 | Pavement Repairs, Emergency | Furnish and install KTC KP4 cold patch material in small quantities as directed. Work includes traffic control as necessary, removal and disposal of loose material, placement and compaction of patch material. Maximum twelve hour response time required. UK may combine repairs into groups, there is no guarantee of a daily minimum.  
41 a Repair or group of repairs requiring < 2 tons in one day 10 TN  
41 b Repair or group of repairs requiring 2 tons or more in one day 10 TN |
| 42 | Pavement System Repairs | Minor asphalt pavement repairs and/or incidental repairs created by items of this document not already included in each item description; includes excavation, removal and disposal of debris, and base reconstruction including DGA base. Assume 8" DGA + 2" asphalt base + 1-1/2" asphalt surface. All patches must be "squared-off." by saw cutting. Does not include Petrotac or milling.  
42 a Pavement section per above, comply with KTC 403 500 SY |
| 43 | Abrasive Cleaning: "Sandblast" cleaning of concrete surfaces | Cleaning of concrete or other masonry surfaces by sandblasting with black beauty, sand, or other media; includes all preparation, equipment, material, clean-up, and disposal of debris.  
43 a Requiring up to 1 day labor 5,000 SF  
43 b Requiring over 1 day labor 5,000 SF |
| 44 | Bollards: Steel pipe | Furnish and install concrete filled steel pipe bollards; 3 feet in concrete under ground and 4 feet above ground; Schedule 40 with primer coat.  
44 a 4-inch diameter bollard 50 Each  
44 b 6-inch diameter bollard 50 Each |
| 45 | Boring: Horizontal | Horizontal boring and installation of conduit or pipe under roadways, walkways, etc. up to 3" diameter. Pipe and/or conduit by Owner.  
45 a Up to 5 feet deep 500 LF  
45 b Below 5 feet deep 100 LF |
### Caulking
Caulking includes removal of existing caulking and rod, the cleaning and priming of the surfaces to receive caulking, the application of the new gasless foam rod and caulk, and tooling of the finished caulk joints. Caulking shall be urethane one-part as manufactured by Sika, Tremco, or Bostic. Color choice by the Owner. This line item for caulking not included in other line items in the this contract.

| 46 | Vertical: Remove and replace joints in the vertical plane | 500 | LF |
| 46 | Horizontal: Remove and replace joints in the horizontal plane | 500 | LF |

### Conduit, Plastic 2" UG electric conduit under walkways
Plastic 2" conduit, ends loosely capped and taped; placed at Owner specified locations under new concrete walks at a minimum depth of 12"; a 1" diameter brass pin shall be placed flush in the uncured concrete at each end of the conduit to identify the location.

| 47 | Conduit 2" x 10’ | 50 | EACH |

### Dump truck Services
Includes tandem dump truck and operator and all operational costs.

| 48 | Dump truck (tandem), operational costs, and operator | 10 | HOUR |

### Cranes

| 49 | 15-20 ton “Cherry Picker” with a minimum 75’ reach, operational costs, and operator | 4 | HOUR |
| 49 | 60-75 ton hydraulic crane with minimum 175’ reach, operational costs, and operator | 4 | HOUR |

### Telescoping Forklifts

| 50 | 8,000 lb with at least a 42’ reach, operational costs, and operator | 20 | HOUR |
| 50 | 10,000 lb with at least a 42’ reach, operational costs, and operator | 20 | HOUR |

### Manlifts

| 51 | Articulating 4 wheel drive with 45’ of reach operational costs, and operator | 48 | HOUR |
| 51 | Articulating 4 wheel drive with 60’ of reach operational costs, and operator | 60 | HOUR |
| 51 | Articulating 4 wheel drive with 80’ of reach operational costs, and operator | 40 | HOUR |

### Excavation and disposal
Excavate and dispose of earth not required by other line items in this document. Rock not included other than incidental rock.

| 52 | Machine excavation up to 5 feet depth | 100 | CY |
| 52 | Machine excavation over 5’ up to backhoe depth limit | 100 | CY |
| 52 | Hand excavation up to 5 feet deep by 2 feet wide | 100 | CY |
| 52 | Hand excavation below 5 feet deep | 200 | CY |
| 52 | Engineered backfill | 200 | CY |
### Floor Coatings, Fluid Applied

Includes floor preparation, cleaning, shot or other type blasting, priming, intermediate coatings, and finish coatings according to manufacturer specifications. Owner will supply the flooring products for application; contractor will bid on surface preparation and application of flooring materials. Contractor must take manufacturer (Neogard) training and become certified to apply flooring materials.

| 53 | a | Hourly labor rate, two-man crew | 1 | HR |

### Handrails, Traditional (UK Design)

Includes fabrication, galvanizing, powder coat, and installation. See Construction Details.

#### Double Handrail

<table>
<thead>
<tr>
<th>54</th>
<th>a</th>
<th>Up to 6-feet length</th>
<th>5</th>
<th>EACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>b</td>
<td>Each additional foot</td>
<td>25</td>
<td>FT</td>
</tr>
<tr>
<td>54</td>
<td>c</td>
<td>Each additional support (post)</td>
<td>5</td>
<td>EACH</td>
</tr>
</tbody>
</table>

#### Single Handrail

<table>
<thead>
<tr>
<th>54</th>
<th>d</th>
<th>Up to 6-feet length</th>
<th>10</th>
<th>EACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>e</td>
<td>Each additional foot</td>
<td>25</td>
<td>FT</td>
</tr>
<tr>
<td>54</td>
<td>f</td>
<td>Each additional support (post)</td>
<td>5</td>
<td>EACH</td>
</tr>
</tbody>
</table>

#### Sidewall Mounted Handrail

<table>
<thead>
<tr>
<th>54</th>
<th>g</th>
<th>Up to 6-feet length</th>
<th>10</th>
<th>EACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>h</td>
<td>Each additional foot</td>
<td>25</td>
<td>FT</td>
</tr>
</tbody>
</table>

### Safety rails, top of wall mounted, Traditional (UK Design)

Includes fabrication, galvanizing, powder coat, and installation. Construction similar to traditional handrail for mounting on top of walls for safety purposes. See Construction Details.

<table>
<thead>
<tr>
<th>55</th>
<th>a</th>
<th>Up to 6-feet length</th>
<th>5</th>
<th>EACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>b</td>
<td>Each additional foot</td>
<td>25</td>
<td>FT</td>
</tr>
<tr>
<td>55</td>
<td>c</td>
<td>Each additional support (post)</td>
<td>5</td>
<td>EACH</td>
</tr>
</tbody>
</table>

### Stone Fill, Delivery and Placement

<table>
<thead>
<tr>
<th>56</th>
<th>a</th>
<th>#2 crushed stone, in place and on grade</th>
<th>1,000</th>
<th>TN</th>
</tr>
</thead>
<tbody>
<tr>
<td>56</td>
<td>b</td>
<td>#57 crushed stone, in place and on grade</td>
<td>1,000</td>
<td>TN</td>
</tr>
<tr>
<td>56</td>
<td>c</td>
<td>#9 crushed stone, in place and on grade</td>
<td>1,000</td>
<td>TN</td>
</tr>
<tr>
<td>56</td>
<td>d</td>
<td>DGA with 5% water maximum, in place and on grade</td>
<td>1,000</td>
<td>TN</td>
</tr>
<tr>
<td>56</td>
<td>e</td>
<td>#57 stone, furnish and deliver only</td>
<td>1,000</td>
<td>TN</td>
</tr>
<tr>
<td>56</td>
<td>f</td>
<td>DGA, furnish and deliver only</td>
<td>1,000</td>
<td>TN</td>
</tr>
</tbody>
</table>

### Slab-jacking (Hydraulic pumping)

Raising concrete slabs using hydraulically pumped grout under slabs for return to safe and consistent sidewalk elevations.

<table>
<thead>
<tr>
<th>57</th>
<th>a</th>
<th>Raise concrete slab or sidewalk; quote at 0.25 CF of grout/SF of sidewalk</th>
<th>1,000</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>b</td>
<td>Added cost for slab-jacking operation requiring over 0.25 CF of grout per SF of sidewalk</td>
<td>500</td>
<td>CF</td>
</tr>
</tbody>
</table>
### Topsoil

Topsoil delivered to the site(s) shall have prior approval of and be acceptable to the Owner prior to delivery. Placement of unacceptable topsoil will be the responsibility of the contractor to remove from the premises.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>CY</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>a</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Delivered and spread on site to finish grade ready for final working and seeding and/or sod by the Owner.</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>b</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Delivered and dumped on site. Finish grading by others.</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>c</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seed Mat</td>
<td>SY</td>
</tr>
<tr>
<td>55</td>
<td>d</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prepare ground and place sod</td>
<td>CY</td>
</tr>
</tbody>
</table>

### Trenching and Conduit installation

Includes 18-inch deep trench, electrical conduit installed, gravel backfill, and minimum of 6 inches of topsoil. Does not include sodding or seeding.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>LF</th>
</tr>
</thead>
<tbody>
<tr>
<td>56</td>
<td>a</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>Up to 2 inch plastic conduit</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>b</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>2 1/2-inch conduit to 4-inch conduit</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>c</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>5-inch conduit</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>d</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>6-inch conduit</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>e</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td>Trenching only</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>f</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Rock excavation (incidental rock not included)</td>
<td></td>
</tr>
</tbody>
</table>

### Waterproofing, Liquid applied

Water and ion proofing treatment for concrete and masonry walls (other than required by line items elsewhere in this document), Chemtrete 40% silane or approved substitute. Siloxanes are not acceptable. Work site or group of work sites

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>a</td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>Requiring less than 1/2 day labor</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>b</td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>Requiring 1/2 day labor or more</td>
<td></td>
</tr>
</tbody>
</table>

### Waterproofing, (Certified Applicator)

Carlise 860/861 (or approved equal) per SF complete with necessary primer, flashing and protection board to include flood testing

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>a</td>
<td>4,000</td>
</tr>
<tr>
<td></td>
<td>Removal of existing waterproofing per SF (as necessary to provide warranty for new waterproofing)</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>b</td>
<td>2,000</td>
</tr>
</tbody>
</table>

### Light Pole Bases (template to be provided)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>EA</th>
</tr>
</thead>
<tbody>
<tr>
<td>59</td>
<td>a</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>18&quot; concrete pole base including conduit and bolts</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>b</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>26&quot; concrete pole base including conduit and bolts</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>c</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>30&quot; concrete pole base including conduit and bolts</td>
<td></td>
</tr>
</tbody>
</table>

**GRAND TOTAL** $
CONCRETE SLABS TO BE - 0" TO + 1/2" TOLERANCE. IF DIMENSIONAL LUMBER IS TO BE USED AS FORMS,
- 4" WALKS TO BE FORMED WITH 2" X 6" AND
- 6" WALKS TO BE FORMED WITH 2" X 8".

NOTE:
IN CASES OF MONOLITHIC CURB, EXTEND CRACK CONTROL JOINT THROUGH CURB

NOTE:
ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.

DENSE GRADE OR STONE REQUIRED UNDER ALL WALKWAYS MIN. 3" DEPTH

SECTION "A - A"

CONCRETE DETAILS
VARIES MINIMUM 6'

SCORING NOT REQUIRED

EXPANSION JOINT

PINNING TYP EQUALLY SPACED

SLOPE 1:12 MAX

24' MIN TRUNCATED DOME

SEPARATE CURB SHOWN; MAY BE MONOLITHIC CURB

VARIES

VARIES 36" MIN.

VARIES

6' TAPERED CURB 1:12 SLOPE

TYP EACH SIDE OF RAMP

ROAD OR SIDEWALK

ADA ACCESSIBLE RAMP DETAIL

(a) elevation

Size and Space of Truncated Domes

Notes:
1. All concrete shall be 4,000 psi unless otherwise specified.
2. To be installed in new or existing walks.
3. The detectable warning shall extend the full width of the curb ramp (exclusive of flared sides) and shall extend either the full depth of the curb ramp or 24 inches deep minimum measured from the back of the curb on the ramp surface.
4. Ensure that raised truncated domes are an integral part of the curb ramp surface.
5. Truncated domes in a detectable warning surface shall have a base diameter of 0.9 inch minimum and 1.4 inches maximum, a top diameter of 50 percent of the base diameter minimum to 65 percent of the base diameter maximum, and a height of 0.2 inch.
6. Detectable warning surfaces shall contrast visually with adjacent walking surfaces either light-on-dark, or dark-on-light.
NOTE:
- DRIVEWAY APRON MAY BE MONOLITHIC AND DOES NOT NECESSARILY REQUIRE A SEPARATE CURB.
- CRACK CONTROL JOINTS SHALL BE SAWED 2" DEEP. * SEE SEPARATE DETAIL SHEET ON CRACK CONTROL JOINTS.

EXPANSION JOINT

CONCRETE SIDEWALK

PINNING-TYPICAL

SCORING NOT REQUIRED

EXISTING ROADWAY OF EITHER BLACKTOP OR CONCRETE CONSTRUCTION

WIDTH VARIES ACCORDING TO EXISTING ROADWAY OR DRIVEWAY

EXPANSION JOINT AND PINNING - IF CONCRETE ROADWAY CONSTRUCTION

SCORING NOT REQUIRED

CONCRETE SIDEWALK

TAPER CURB
1:12 MAX.
SIDE SLOPES

NEW 6" CONCRETE APRON TOLERANCE - 0" +1/2"

1:12 SLOPE.
ANY VARIANCES MUST RECEIVE PRIOR APPROVAL FROM THE UNIVERSITY OF KENTUCKY.

1:12 MAX.
SIDE SLOPES

6" CURB HEIGHT

NOT TO SCALE
"TOOLED" OR SAWED JOINT

1/4" SAWED JOINT MINIMUM 2 INCHES
(1/3 TO 1/2 DEPTH OF SLAB).
THIS DETAIL WILL BE USED ON A SKIP
BASIS AS DESIGNATED BY THE OWNER.
NOTE: WITH MONOLITHIC WALK AND CURB,
EXTEND CONTROL JOINT THROUGH CURB

1"

4"

4" OR 6"

CONCRETE SLAB

DGA OR STONE AS REQUIRED

COMPACTED SUB.

WALK CONTROL JOINT

SCALE: 4"=1'
* ON SHEET 8.5"X11"

William R. Culpepper
07/21/05

CONCRETE DETAILS
WALK CONTROL JOINT

UK UNIVERSITY OF KENTUCKY
Physical Plant Division

REVISIONS
BY
DATE

DESIGNED BY:
DRAFTED BY:
CHECKED BY:
APPROVED BY:
PROJECT:

DATE:
DIV.
07/21/05
1 of 1
NOTE: ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.  
CLEAN / PRIME JOINTS PRIOR TO CAULKING PROCESS.  
DENSE FOAM SHALL BE USED ON RADIUS SITUATIONS. (SEE DETAILS BELOW)

NOTE: DENSE FOAM SHALL BE USED ON RADIUS SITUATIONS. EXAMPLE: POLES, PIPES, BOLLARDS, MANHOLE COVERS, & ETC. (SEE DETAIL BELOW)

EXPANSION JOINT DETAILS

ZIP STRIP INSTALLATION

TOP 1/2" FOAM TO BE REMOVED & FILLED WITH POLYURETHANE CAULK SIKA-1A OR APPROVED SUBSTITUTE

SCALE: 1/2"=1'
* ON 8 1/2 X 11 SHEET

NOTE: INSTALL EXPANSION JOINTS ON CONCRETE PROTRUSIONS, MANHOLE COVERS & ETC.
NOTE:
ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.

TYPICAL FULL DEPTH BITUMINOUS ASPHALT. SEE SPECIFICATIONS FOR DEPTH OF THE MATERIALS.

STONE FILL AS REQUIRED

FINISH GRADE VARIES - MAY OR MAY NOT HAVE WALKWAY (TURF SHOWN)

#4 REBAR CONT.

STANDARD 6" CURB DETAIL

*SSCALE: 2" = 1"
*ON 8.5X11" SHEET
NOTE:
1. ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.
2. THIS CURB IS FOR USE AT LOCATIONS WHERE SNOW PLOW DAMAGE MAY OCCUR. ITS USE IS TO BE DETERMINED BY THE DESIGNER OR BY THE UNIVERSITY OF KENTUCKY.

SLOPE \( \frac{1}{4} \) IN PER FOOT

\( \frac{1}{2} \) IN RADIUS

INDICATES SAWED CONTROL JOINTS AT REGULAR INTERVALS. 2 IN DEPTH

FINISH GRADE VARIES MAY OR MAY NOT HAVE WALKWAY (TURF SHOWN)

#4 REBAR CONT.

6 IN

6 IN

2 IN

6 IN

1'-6 IN

#10 W.W.F.

STONE FILL AS REQUIRED

INTEGRAL CURB AND GUTTER DETAIL

SCALE: 2" = 1'

*ON SHEET 8.5"X11"
FINISH GRADE VARIATES
- MAY OR MAY NOT
HAVE WALKWAY
(WALKWAY SHOWN)

PINNING IF
CONCRETE

EXPANSION JOINT
IF CONCRETE

CAN BE BLACKTOP
OR CONCRETE

PINNING IF CONCRETE

1'-4"

4\(\frac{1}{4}\)

R9"

12"

2\(\frac{3}{4}\)"

D.G.A. COMPACTED BASE

COMPACTED SUB-GRADE

MOUNTABLE CURB DETAIL

SCALE: 2" = 1'
* ON SHEET 8.5"X11"

WILLIAM R. BOLLEN

07/21/05
NOTE:
ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.

EXISTING SIDEWALK VARIES

SUBSTRATE VARIES

FINISH GRADE VARIES - MAY OR MAY NOT HAVE WALKWAY (TURF SHOWN)

SCALE: 2" = 1'
* ON SHEET 8.5"X11"
TAPER END OF CURB
1:12 SLOPE

SURFACE OF ROAD
OR GUTTER

CURB MAY OR
MAY NOT
EXTEND
BEYOND END
OF TAPER.

NOTE:
ALL CONCRETE SHALL BE 4,000 PSI UNLESS
OTHERWISE SPECIFIED.

HC TAPERED CURB 6' DETAIL

SCALE: 3/4"=1' *ON SHEET 8.5"X11"
LONG TAPERED CURB 3' DETAIL

NOTE:
ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.

TAPER END OF CURB

CURB MAY OR MAY NOT EXTEND BEYOND END OF TAPER.

SURFACE OF ROAD OR GUTTER

VARIES

SCALE: 1' = 1" ON SHEET 8.5" X 11"

07/15/04
NOTE:
ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.

SHORT TAPERED CURB 6" DETAIL

SCALE: 1"=1' *ON SHEET 8.5"X11"

CURB MAY OR MAY NOT EXTEND BEYOND END OF TAPER.

TAPER END OF CURB

SURFACE OF ROAD OR GUTTER

VARIES
NOTE:
- ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.
- THIS CURB IS FOR USE AT LOCATIONS WHERE SNOW PLOW DAMAGE MAY OCCUR.
  THE USE OF THIS CURB IS TO BE DETERMINED BY THE DESIGNER OR BY THE UNIVERSITY OF KENTUCKY.

CONCRETE DETAILS
CONCRETE: ANGLE FACE CURB (SHALLOW)

ANGLE FACE CURB FOR SHALLOW PLANTER BEDS, LAWNS & WALKWAYS

SCALE: 2"=1' *ON SHEET 8.5"X11"

6" X 6" X #10 WWM PULLED TO CENTER OF SLAB
EXPANSION JOINT SEE SEPARATE DETAIL
PINNING
VARIES 4" MIN.
CONCRETE SLAB (OR BLACKTOP)

#4 REBAR
FINISH GRADE VARIES MAY OR MAY NOT HAVE WALKWAY (TURF SHOWN)

18" MIN.
NOTE:
- ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.
- THIS CURB IS FOR USE AT LOCATIONS WHERE SNOW PLOW DAMAGE MAY OCCUR.
  THE USE OF THIS CURB IS TO BE DETERMINED BY THE DESIGNER OR BY THE UNIVERSITY OF KENTUCKY.

ANGLE FACED CONCRETE CURB FOR SHALLOW PLANTERS

EXPANSION JOINT SEE SEPARATE DETAIL

4" X 6" X #10 WWM PULLED TO CENTER OF SLAB

PINNING

VARIES 4" MIN.

CONCRETE SLAB (OR BLACKTOP)

#4 REBAR

FINISH GRADE VARIES MAY OR MAY NOT HAVE WALKWAY (TURF SHOWN)

4" 4"

3"

18" MIN.

ANGLE FACE CURB FOR PLANTER BEDS, LAWNS & WALKWAYS

SCALE: 2"=1' *ON SHEET 8.5"X11"
NOTE:
- ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.
- THIS CURB IS FOR USE AT LOCATIONS WHERE SNOW PLOW DAMAGE MAY OCCUR.
  THE USE OF THIS CURB IS TO BE DETERMINED BY THE DESIGNER OR BY THE UNIVERSITY OF KENTUCKY.

ANGLE FACED CONCRETE CURB
FOR DEEP PLANTERS

EXPANSION JOINT SEE SEPARATE DETAIL

5"  4"

6" X 6" X #10 WWM
PULLED TO CENTER OF SLAB

PINNING

VARIABLE 4" MIN.

CONCRETE SLAB
(OR BLACKTOP)

MULCH

18" MIN.

#4 REBAR
FINISH GRADE VARIES MAY OR
MAY NOT HAVE WALKWAY
(TURF SHOWN)

ANGLE FACE CURB FOR DEEP PLANTER BEDS, LAWNS & WALKWAYS

SCALE: 2" = 1' * ON SHEET 8.5"X11"

UK UNIVERSITY OF KENTUCKY
Physical Plant Division

CONCRETE DETAILS
ANGLE FACED CURB (DEEP)

REVISIONS
MAN: B. ANCOLIN
DATE: 06/20/04

PROJECT:
07/10/2005

DRAW #: 1 of 1
NON SLIP BROOM FINISH ON WALKS

VARIES 4" MIN.

6" X 6" X #10 W.W.M. PULLED TO CENTER OF SLAB

COMPACTED SUB-GRADE OR STONE FILL

4" MINIMUM TOLERANCE +1/2" - 0"

TYPICAL SIDEWALK DETAIL

1/2" EXPANSION JOINT TYP.

1/2" EXPANSION JOINT TYPICAL

11" TO 14"

6" TO 7"

2" 2"

1/4"/FT. MIN.

SLOPE

#4 Ø REBAR AT 12" O.C. EACH WAY

3" MIN. COVER ON REBAR

2 - #4 Ø CONT.

6"

NOTE:
ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.

TYPICAL STEP DETAIL

SCALE: 1 1/4" = 1'

* ON SHEET 8.5"X11"
**SINGLE SIDE MOUNTED BRACKET & RAIL**

N.T.S.

**DOUBLE CENTER HANDRAIL DETAIL**

N.T.S.

**DOUBLE CENTER HANDRAIL CONSTRUCTION**

N.T.S.

**NOTE:**

1. LOCATION ON TREAD CAN VARY, HOWEVER, SHALL BE NO CLOSER THAN 3" TO NOSING OR EDGE.
2. BRASS FINIALS AND RAIL SHOWN, DEPENDING ON THE APPLICATION AND OR LOCATION, FINIALS AND RAIL COVER MAY BE STAINLESS, ALUMINUM, OR OTHER.

*Signature*:

*07/21/2005*
NOTE:
1. THESE DETAILS FOR FABRICATION DIRECTIONS ONLY: SAFETY RAIL TO BE CONSTRUCTED TO FIT THE GIVEN SITUATION.
2. BRASS FINIALS AND RAIL SHOWN. DEPENDING ON THE APPLICATION AND/OR LOCATION, FINIALS AND RAIL COVER MAY BE STAINLESS, ALUMINUM, OR OTHER.

WALL SAFETY RAIL DETAIL
N.T.S.

WALL SAFETY RAIL CONSTRUCTION
N.T.S.

2" BRASS BALL FINIAL
STAINLESS STEEL STUD
APPLY EPOXY OR MASTIC TO THREADS TO PREVENT BALL FROM BEING REMOVED
INSTALL WASHER BETWEEN BRONZE AND IRON, TO PREVENT GALVANIC ACTION
1-1/2" SOLID SQUARE POST
URETHANE CAULK OR OTHER FILLER MATERIAL APPROVED BY OWNER
TYP. CONCRETE WALL SECTION

6" MIN. DEPTH
STAIR HANDRAIL DETAIL
N.T.S.

HANDRAIL DETAIL
N.T.S.

NOTE:
1. LOCATION ON TREAD CAN VARY, HOWEVER, SHALL BE NO CLOSER THAN 3" TO NOSING OR EDGE.
2. BRASS FINALS AND RAIL SHOWN. DEPENDING ON THE APPLICATION AND/OR LOCATION, FINALS AND RAIL COVER MAY BE STAINLESS, ALUMINUM, OR OTHER.

APPLY EPOXY OR MASTIC TO THREADS TO PREVENT BALL FROM BEING REMOVED

STAINLESS STEEL STUD

2" BRASS BALL FINIAL

INSTALL WASHER BETWEEN BRONZE AND IRON, TO PREVENT GALVANIC ACTION

3/8" X 2" X 2" POST CAP

1-1/2" SQUARE SOLID POST

3/4" X 4" X 3" FOR SUPPORT

URETHANE CAULK OR OTHER FILLER MATERIAL
APPROVED BY OWNER

6" MIN. DEPTH

HANDRAIL CONSTRUCTION
N.T.S.

WILLIAM R. ADAMS
07/21/2005
NOTE:
1. ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.
2. CRACK CONTROL JOINT SPACING VARIES BY JOB & WIDTH OF WALKWAY

CRACK CONTROL JOINT TO BE EXTENDED THROUGH CURB AND GUTTER AT REGULAR INTERVALS

EXPANSION JOINT BETWEEN CURB AND WALKWAY
SEE DETAIL - SECTION "A-A"

FORM AND POUR A 2" SQUARE AROUND UTILITY POLE (CAN BE OTHER DIMENSIONS) DO NOT PIN TO SURROUNDING CONCRETE

ISOLATION PANEL EXPANSION JOINT:
DO NOT PIN TO ADJACENT CONCRETE

USE DENSE FOAM & CAULK AROUND POLE FOR EXPANSION - SEE SECTION "A-A" & DETAIL SHEET ON EXPANSION JOINTS

EXISTING UTILITY POLE - THIS DETAIL IS FOR HYDRANTS, METERS, DOWN GUYS & ANCHORS, OR OTHER SITUATIONS.

TOP 2" OF SCORED FOAM TO BE REMOVED & FILLED WITH POLYURETHANE CAULK SIKA-1A OR APPROVED SUBSTITUTE

CURB MAY OR MAY NOT INCLUDE GUTTER

SECTION "A-A"

CRACK CONTROL JOINT THROUGH CURB AT ONE CORNER OF ISOLATION PANEL

CAULK

ZIP STRIP - EXPANSION MATERIAL

EXPANSION JOINT MAY BE PLACED AS PART OF POLE ISOLATION. BUT MUST HAVE A CRACK CONTROL JOINT.

UTILITY POLE ISOLATION DETAIL WITH CURB

N.T.S.

CONCRETE DETAILS

UTILITY POLE ISOLATION WITH CURB

UK
UNIVERSITY OF KENTUCKY
Physical Plant Division
NOTE:
1. CRACK CONTROL JOINT SPACING VARIERS BY JOB & WIDTH OF WALKWAY
2. ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.

CRACK CONTROL JOINT TO BE EXTENDED THROUGH CURB AT ALL LOCATIONS

CRACK CONTROL JOINT BETWEEN CURB AND WALKWAY
SEE SECTION "B-B"

FORM AND POUR 2' SQUARE AROUND UTILITY POLE
(CAN BE OTHER DIMENSIONS) DO NOT PIN TO SURROUNDING CONCRETE

ISOLATION PANEL EXPANSION JOINT- DO NOT PIN TO ADJACENT CONCRETE

USE DENSE FOAM & CAULK AROUND POLE FOR EXPANSION - SEE SECTION "A-A"

EXISTING UTILITY POLE - THIS DETAIL IS FOR HYDRANTS, METERS, DOWN GUYS & ANCHORS, OR OTHER SITUATIONS.

TOP 3/8" OF SCORED FOAM TO BE REMOVED & FILLED WITH POLYURETHANE CAULK SIKA-1A OR APPROVED SUBSTITUTE

SAWED CURB LINE MIN. 3/8" DEEP

UTILITY POLE ISOLATION DETAIL - WITH MONOLITHIC CURB

SCALE: 1/4" = 1'
NOTE:
1. ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.
2. THIS DETAIL IS FOR FIRE HYDRANTS, UTILITY POLES, PIPES, DOWN GUY WIRES AND ANCHORS, ALSO, OTHER SITUATIONS WHERE REPAIR OR REMOVAL OF SUCH ITEMS WOULD CAUSE UNNECESSARY DAMAGE TO WALKWAYS.
3. USE DENSE FOAM AROUND POLES AND LARGE PIPES. SCORE THE TOP 1/2" OF FOAM STRIP TO ALLOW EASY REMOVAL FOR CAULKING.
   - PIPE 6" DIAMETER AND LESS DO NOT REQUIRE DENSE FOAM EXPANSION AND CAULK.
4. ISOLATION PANELS ARE NOT TO BE PINNED TO ADJACENT CONCRETE.
5. ISOLATION PANELS SHOULD ALWAYS BE PART OF EXPANSION JOINTS OR CONTROL JOINTS. (SEE ISOLATION PANEL DRAWINGS)
6. ISOLATION PANELS ARE NOT LIMITED TO THESE DIMENSIONS.

MISCELLANEOUS ISOLATION PANELS
SCALE: 1/2" = 1'
ANCHOR BOLT PATTERN PER MANUFACTURER

30" Ø CONCRETE PIER LIGHTPOLE BASE

2" CONDUIT WITH 1 FOOT RADIUS ELS STUBBED OUT AT 18 INCHES BELOW GRADE

#6 GROUND WIRE IN CONDUIT

1"

2 1/4" MIN

1"  3" MIN

28"

TOP OF PAVEMENT (GRADE LEVEL)

1' 8"

3' MIN

1' 6"

3' MIN

1/8" GROUND ROD 6' LONG.

SECTION "A-A"

30" Ø CONCRETE PIER

1" X 60" ANCHOR BOLTS WITH WASHERS & NUTS

30" CONCRETE LIGHT POLE BASE

CONCRETE DETAILS
LIGHT POLE ROUND BASE UK
ANCHOR BOLT PATTERN VARIES PER MANUFACTURER

18" & 26" Ø CONCRETE PIER LIGHT POLE BASE

2" CONDUIT WITH 1 FOOT RADIUS EL'S STUBBED OUT AT 18 INCHES BELOW GRADE

#6 GROUND WIRE IN CONDUIT

TOP OF GRADE

1"  2 1/4" MIN

1'-8"

1/8" Ø GROUND ROD 8' LONG.

3" MIN

#4 REBAR WELDED TO ANCHOR BOLTS ALL 4 SIDES. EXTEND REBAR A MIN. OF 2" BEYOND BOLTS.

SECTION "A-A"

1" X 36" ANCHOR BOLTS WITH WASHERS & NUTS

18" & 26" CONCRETE PIER

18" & 26" CONCRETE LIGHT POLE BASE
NOTES:
1. CURB BOX ADJUSTABLE 6" TO 9" TO MATCH TOP OF CURB.
2. NO. 5 STEEL SHALL BE USED THROUGHOUT ON 12" CENTERS
3. ALL EXPOSED FLAT WORK SHALL HAVE A HAND FLOATED AND BROomed FINISH.
4. NO STEEL IS REQUIRED IN BOTTOM SLAB
5. ALL VERTICAL STEEL SHALL EXTEND 4" INTO BOTTOM SLAB.
6. SET BACK FRAME IN CONCRETE TO ANCHOR IN PLACE AFTER IT HAS BEEN ADJUSTED.
7. VANE GRATES REQUIRED UNLESS IN SAG CONDITION.
8. ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.

PLAN VIEW
N.T.S.

ISOMETRIC VIEW
N.T.S.

CONCRETE DETAILS
CURB INLET TYPE 2

SECTION C-C
N.T.S.

VANE GRATE DETAIL
N.T.S.

SECTION D-D
N.T.S.

2" X 4" KEY AT CONSTRUCTION JOINTS

PIPE CAN EXIT IN ANY DIRECTION

SEE NOTE

VARIES
NOTE:
ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.

CAN BE CONTROL JOINT OR EXPANSION JOINT AS SPECIFIED ON CONSTRUCTION DRAWINGS

FACE OF CURB

SURFACE OF ROAD (OR GUTTER)

CAST IRON FRAME AND SOLID COVER

CAST-IN-PLACE REINFORCED CONCRETE SLAB

4" TO 6" OPENING

PIPE CAN EXIT IN ANY DIRECTION & FROM ANY SIDE

CONCRETE OR BRICK

PLAN VIEW

SECTION "H-H"

WILLIAM R. CORDER
07/15/2004
<table>
<thead>
<tr>
<th>SCREEN SIZE (MM)</th>
<th>SCREEN NAME</th>
<th>SPECIFIED % MIN</th>
<th>PASSING MAX</th>
<th>MEDIAN</th>
<th>% PASSING</th>
<th>AVERAGE % PASSING GROUP</th>
<th>STANDARD DEVIATION GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.0</td>
<td>1&quot;</td>
<td>100</td>
<td>100</td>
<td>100.0</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.00%</td>
</tr>
<tr>
<td>19.0</td>
<td>3/4&quot;</td>
<td>90</td>
<td>100</td>
<td>95.0</td>
<td>95.9%</td>
<td>95.0%</td>
<td>3.70%</td>
</tr>
<tr>
<td>9.50</td>
<td>3/8&quot;</td>
<td>20</td>
<td>55</td>
<td>37.5</td>
<td>33.6%</td>
<td>14.8%</td>
<td>10.55%</td>
</tr>
<tr>
<td>4.75</td>
<td>#4</td>
<td>0</td>
<td>10</td>
<td>5.0</td>
<td>3.7%</td>
<td>1.4%</td>
<td>1.31%</td>
</tr>
<tr>
<td>2.36</td>
<td>#3</td>
<td>0</td>
<td>5</td>
<td>2.5</td>
<td>2.4%</td>
<td>1.0%</td>
<td>0.80%</td>
</tr>
</tbody>
</table>

**TEST SPECIFICATION:** #67 GRAVEL, KY, STATE

**SUGGESTED GRAVEL SOURCE:** IMI CONCRETE

**RETARDER:** HOFFMAN; MASTER BUILDERS; FOREMOST; OR EQUAL APPROVED BY OWNER

**MIX:** 6-1/2 BAG CEMENT FOR 4000 PSI CONCRETE. **NOTE:** ALL CONCRETE SHALL BE 4,000 PSI UNLESS OTHERWISE SPECIFIED.

**CLEANING AGENT:** PROSOCO 600

**TREATMENT PROCESS:** CHEMCRETE SILANE APPLIED AFTER:
1. 7 DAYS WHEN SODIUM SILICATE CURING AGENTS ARE USED.
2. 7 DAYS FOR MOISTURE CURE - NO CURING AGENTS.
3. DISSIPATING RESINS ARE EXPRESSLY PROHIBITED IF SILANE IS TO BE APPLIED.

**CONCRETE SPECIFICATIONS**

UK EXPOSED CONCRETE AGGREGATE GRADATION
University of Kentucky

Tree Protection Standards

Dated: 05/2017
Applies to: All Projects
University of Kentucky
Article 56 is in addition to, and takes precedence over the provisions of the Special Conditions for the Project.

ARTICLE 56
PART 1 –GENERAL

56.1.1 SUMMARY

A. The scope of work includes all labor, materials, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with protection of existing trees and other plants as shown on the drawings and as specified herein.

2. Provide tree and plant protection fencing.
3. Provide protection of root zones and above ground tree parts and plants.
4. Provide pruning of existing trees and plants.
5. Provide all insect and disease control.
6. Provide maintenance of existing trees and plants including irrigation during the construction period as recommended by the Arborist Report.
7. Provide maintenance of existing trees and plants including irrigation during the post construction plant maintenance period.
8. Remove tree protection fencing and other protection from around and under trees and plants.
9. Clean up and disposal of all excess and surplus material.

56.1.2 CONTRACT DOCUMENTS

A. Shall consist of specifications, general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

B. It is the intent of this section that the requirements apply to all sections of the project specification such that any subcontractor must comply with the restrictions on work within designated Tree and Plant Protection Areas.
56.1.3 RELATED DOCUMENTS AND REFERENCES

A. Related Documents:
   1. Drawings and general provisions of contract including general and supplementary
      conditions and Division I specifications apply to work of this section.
   2. Section - Planting Soil
   3. Section - Irrigation
   4. Section - Planting
   5. Section - Lawn

B. References: The following specifications and standards of the organizations and documents
   listed in this paragraph form a part of the specification to the extent required by the references
   thereto. In the event that the requirements of the following referenced standards and
   specification conflict with this specification section the requirements of this specification shall
   prevail. In the event that requirements of any of the following referenced standards and
   specifications conflict with each other the more stringent requirement shall prevail.

   1. ANSI A 300 (Part 5) – Standard Practices for Tree, Shrub and other Woody Plant
      Maintenance, Management of Trees & Shrubs During Site Planning, Site
      Development & Construction. Most current editions.
   2. ANSI A 300 (Part 1) – Standard Practices for Tree, Shrub and other Woody Plant
      Maintenance, Pruning. Most current editions.
   3. ANSI Z133 Safety Requirements for Arboricultural Operations.
   4. Glossary of Arboricultural Terms, International Society of Arboriculture, Champaign
      IL, most current edition.

56.1.4 VERIFICATION

A. All scaled dimensions on the drawings are approximate. Before proceeding with any
   work, the Contractor shall carefully check and verify all dimensions and quantities, and
   shall immediately inform the Owner’s Representative of any discrepancies between the
   information on the drawings and the actual conditions, refraining from doing any work
   in said areas until given approval to do so by the Owner’s Representative.
56.1.5 PERMITS AND REGULATIONS

A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner’s Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.

C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner’s Representative shall determine which shall govern.

56.1.6 PROTECTION OF WORK, PROPERTY AND PERSON

A. The Contractor shall protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

56.1.7 CHANGES IN THE WORK

A. The Owner’s Representative may order changes in the work, and the contract sum should be adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.
56.1.8 DEFINITIONS

All terms in this specification shall be as defined in the “Glossary of Arboricultural Terms” or as modified below.

A. Owner’s Representative: The person appointed by the Owner to represent their interest in the Tree and Plant Protection and approval of the work and to serve as the contracting authority with the Contractor. The Owner’s Representative may appoint other persons to review and approve any aspects of the work.

B. Reasonable and Reasonably: When used in this specification is intended to mean that the conditions cited will not affect the establishment or long term stability, health or growth of the plant. This specification recognizes that plants are not free of defects, and that plant conditions change with time. This specification also recognizes that some decisions cannot be totally based on measured findings and that professional judgment is required. In cases of differing opinion, the Owner’s Representative expert shall determine when conditions within the plant are judged as reasonable.

C. Shrub: Woody plants with mature height approximately less than 25 feet.

D. Tree and Plant Protection Area: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and defined by a circle centered on the trunk with each tree with a radius equal to the crown dripline unless otherwise indicated by the owner’s representative.

E. Tree: Single and multi-stemmed plants with anticipated mature height approximately greater than 25 feet or any plant identified on the plans as a tree.
56.1.9 SUBMITTALS

A. ARBORIST REPORT: Prior to the start of construction, submit, for approval by the Owner’s Representative, the report of a consulting arborist who is a Registered Consulting Arborist® (RCA) with American Society of Consulting Arborists or an ISA Board Certified Master Arborist, which details the following information for all trees to remain within the area designated on the drawings as the Tree and Plant Protection Area. The report shall include the following:

1. A description of each tree to protect indicating the following:
   a. Genus and species
   b. Condition including any visible damage to the root system or soil within the root zone
   c. Tree diameter at 4.5 feet above grade
   d. Tree height
   e. Crown width
   f. Any visible disease and/or insect infestations
   g. Branch and/or trunk structural deficiencies.
   h. Appraisal of value
   i. Appraisal of benefits (storm water interception, heating/cooling, carbon sequestration)

2. The report shall note all trees or parts of trees, which are considered a hazard or significant or extreme risk level. Include the International Society of Arboriculture Tree Risk Assessment evaluation sheet for each tree, which may reasonably be identified as a potential hazard tree.

3. Recommendations as to treatment of all insect, disease and structural problems encountered.

4. Recommendations for fertilizer treatments, if any.

5. A plan of the site showing the location of all trees included in the report.

B. PRODUCT DATA: Submit manufacturer product data and literature describing all products required by this section to the Owner’s Representative for approval. Provide submittal four weeks before the start of any work at the site.

C. QUALIFICATIONS SUBMITTAL: For each applicable person expected to work on the project, provide copies of the qualifications and experience of the Consulting Arborist, proof of either the registered Consulting Arborist® (RCA) with American Society of Consulting Arborists or an ISA Board Certified Master Arborist and any required Herbicide/Pesticide license to the Owner’s Representative, for review prior to the start of work.

56.1.10 OBSERVATION OF THE WORK

A. The Owner’s Representative may inspect the work at any time.
56.1.11 PRE-CONSTRUCTION CONFERENCE

A. Schedule a pre-construction meeting with the Owner’s Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

1. The following Contractors shall attend the preconstruction conference:
   a. General Contractor.
   b. Consulting Arborist.
   c. Subcontractor assigned to install Tree and Plant Protection measures.
   d. Earthwork Contractor.
   e. All site utility Contractors that may be required to dig or trench into the soil.
   f. Landscape subcontractor.
   g. Irrigation subcontractor

B. Prior to this meeting, mark all trees and plants to remain and or be removed as described in this specification for review and approval by the Owner’s Representative.

56.1.12 QUALITY ASSURANCE

A. Contractor qualifications:

1. All pruning, branch tie back, tree removal, root pruning, and fertilizing required by this section shall be performed by or under the direct supervision of an ISA Certified Arborist. Submit aforementioned individual’s qualifications for approval by the Owner’s Representative.

2. All applications of pesticide or herbicide shall be performed by a person maintaining a current state license to apply chemical pesticides valid in the jurisdiction of the project. Submit copies of all required state licensing certificates including applicable chemical applicator licenses.

56.1.13 DAMAGE OR LOSS TO EXISTING PLANTS TO REMAIN

A. Specimen trees within or adjacent to construction areas will be identified by the Owner’s Representative and the Architect, and marked with green tags. Loss of any of these trees will result in fines assessed at a minimum of $10,000 (or higher appraised amount that may be determined by the University prior to construction) per tree. Damage to all other trees on the property will be assessed at the rate of $200 per diameter inch of the tree measured 4.5’ above grade.

B. Any trees or plants designated to remain and which are damaged by the Contractor shall be replaced in kind by the Contractor at their own expense in addition to fines and penalties.
Tree(s) shall be replaced with a tree(s) of similar species and equivalent trunk diameter to the tree(s) being replaced. For example, if a 20” diameter tree is to be replaced, the Contractor can provide ten (10) two inch diameter trees. Depending on site accommodations and landscape design, the replacement trees may be installed outside of the project site as directed by the Owner’s Representative. Shrubs shall be replaced with a plant of similar species and equal size or the largest size plants reasonably available whichever is less. Where replacement plants are to be less than the size of the plant that is damaged, the Owner’s Representative shall approve the size and quality of the replacement plant.

1. All trees and plants shall be installed per the requirements of Specification Section Planting.

C. Plants that are damaged shall be considered as requiring replacement or appraisal in the event that the damage affects more than 25% of the crown, 25% of the trunk circumference, or root protection area, or the tree is damaged in such a manner that the tree could develop into a potential hazard. Trees and shrubs to be replaced shall be removed by the Contractor at his own expense.

1. The Owner's Representative may engage an independent arborist to assess any tree or plant that appears to have been damaged to determine their health or condition.

D. Any tree that is determined to be dead, damaged or potentially hazardous by the Owner’s arborist and upon the request of the Owner’s Representative shall be immediately removed by the Contractor at no additional expense to the owner. Tree removal shall include all clean-up of all wood parts and grinding of the stump to a depth sufficient to plant the replacement tree or plant, removal of all chips from the stump site and filling the resulting hole with topsoil.

E. Any remedial work on damaged existing plants recommended by the Consulting Arborist shall be completed by the Contractor at no cost to the owner. Remedial work shall include but is not limited to: soil compaction remediation and vertical mulching, pruning and or cabling, insect and disease control including injections, compensatory watering, additional mulching, and could include application tree growth regulators (TGR). Any remedial work is to be performed by an ISA Certified Arborist, ISA Board Certified Master Arborist or a Registered Consulting Arborist.

F. Remedial work may extend up to two years following the completion of construction to allow for any requirements of multiple applications or the need to undertake applications at required seasons of the year.

56.1.14 LOSS OF TREES DUE TO CONSTRUCTION FOOT PRINT

A. Any trees or plants designated as removals to accommodate construction shall be replaced. Tree(s) shall be replaced with a tree(s) of similar species and equivalent trunk diameter to the tree(s) removed. For example, if a 20” diameter tree is removed, the Contractor can provide ten (10) two inch diameter trees. Depending on site accommodations and landscape design, the replacement trees may be installed outside of the project site as
directed by the Owner’s Representative. Shrubs shall be replaced with a plant of similar species and equal size or the largest size plants reasonably available whichever is less.

PART 2 –PRODUCTS

56.2.1 MULCH

The coarse grade Mulch specified here is considered superior for its water retention and soil building properties in areas of tree and shrub roots when irrigation is drip, bubblers or flood methods.

A. Mulch shall be coarse, ground, from tree and woody brush sources. The minimum range of fine particles shall be 3/8 inch or less in size and a maximum size of individual pieces shall be approximately 1 to 1-1/2 inch in diameter and maximum length of approximately 4 to 8 inches. No more that 25% of the total volume shall be fine particles and no more than 20% of total volume be large pieces. Mulch will be applied to a depth of 3 to 5 inches. Mulch shall not come into contact with the tree trunk.

1. It is understood that Mulch quality will vary significantly from supplier to supplier and region to region. The above requirements may be modified to conform to the source material from locally reliable suppliers as approved by the Owner’s Representative.

B. Submit supplier’s product data that product meets the requirements and two-gallon sample for approval.

56.2.2 WOOD CHIPS

A. Wood Chips from an arborist chipping operation with less than 20% by volume green leaves. Chips stockpiled from the tree removal process may be used. Mulch will be applied to a depth of 5 to 8 inches. Mulch shall not come into contact with the tree trunk.

56.2.3 TREE PROTECTION FENCING

A. Chain link fencing shall be installed around all existing trees to remain. Fencing shall be 6’ tall galvanized nine gauge, with 3” end and line post and 1” minimum top rails, and bottom tension wire a maximum of 3” off the ground. Post shall be driven into the ground and spacing shall not exceed 8 feet.

6 feet tall metal chain link fence set in metal frame panels on movable core drilled concrete blocks of sufficient size to hold the fence erect in areas of existing paving to remain.

B. Orange plastic fencing shall be installed on the outside of the chain link fencing to provide high visibility.
C. GATES: For each fence type and in each separate fenced area, provide a minimum of one 3-foot-wide gate. Gates shall be lockable. The location of the gates shall be approved by the Owner’s Representative.

D. Submit supplier’s product data that product meets the requirements for approval.

56.2.4 TREE PROTECTION SIGN

A. Heavy-duty laminated or all weather signs, 11 inches x 17 inches, white colored background with black 2 inch high or larger block letters. The signs shall be attached to the tree protection fence every 50 feet. The tree protection sign shall read:

“Tree Protection Area - Keep Out”

The following information shall also be included on the sign:

i. Genus and species
ii. Tree diameter
iii. Tree height
iv. Appraised value of tree
v. Benefits provided
   1. Storm water interception in gallons
   2. Carbon sequestration in pounds
   3. Energy Savings

56.2.5 TREE (Plant) GROWTH REGULATOR (TGR/PGR)

A. Active ingredient Paclobutrazol i.e. (ShortStop, Cambistat 25C, Profile 2SC or other)

B. Submit supplier’s product data that product meets the requirements for approval.

56.2.6 SOIL & ROOT PROTECTION

On projects where the tree protection fencing cannot be installed to create the desired protection zone.

A. Matting for vehicle and work protection shall be heavy duty matting designed for vehicle loading over tree roots, Alturnamats as manufactured by Alturnamats, Inc. Franklin, PA 16323 or approved equal.

B. 1/2“Steel plates - Following the recommendations of the project arborist steel plates shall be installed to protect the roots from Construction activities.

C. Submit suppliers’ product data that product meets the requirements for approval.

56.2.7 GEOGRID

A. Geogrid shall be woven polyester fabric with PVC coating, Uni-axial or biaxial geogrid, inert to biological degradation, resistant to naturally occurring chemicals, alkalis, acids.

   Manufacturers: GSE Environmental, TenCate, Terram

B. Submit suppliers’ product data that product meets the requirements for approval.
56.2.8 GEOTEXTILE

A. Geotextile shall be nonwoven polypropylene fibers, inert to biological degradation and resistant of naturally occurring chemicals, alkalis and acids.

Manufacturers: GSE Environmental, TenCate, Terram

B. Submit supplier’s product data that product meets the requirements for approval.

PART 3 –EXECUTION

56.3.1 SITE EXAMINATION

A. Examine the site, tree, plant and soil conditions. Notify the Owner’s Representative in writing of any conditions that may impact the successful Tree and Plant Protections that is the intent of this section.

56.3.2 COORDINATION WITH PROJECT WORK

A. The Contractor shall coordinate with all other work that may impact the completion of the work.

B. Prior to the start of Work, prepare a detailed schedule of the work for coordination with other trades.

C. Coordinate the relocation of any irrigation lines currently present on the irrigation plan, heads or the conduits of other utility lines or structures that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner’s Representative of any conflicts encountered.

56.3.3 TREE AND PLANT PROTECTION AREA

A. The Tree and Plant Protection Area is defined as all areas indicated on the tree protection plan. Where no limit of the Tree and Plant Protection area is defined on the drawings, the limit shall be the drip line (outer edge of the branch spread) of each tree.

56.3.4 PREPARATION

A. Prior to the preconstruction meeting, layout the limits of the Tree and Plant Protection Area and then alignments of required Tree and Plant Protection Fencing and root pruning. Obtain the Owner’s Representative's approval of the limits of the protection area and the alignment of all fencing and root pruning.

B. Flag all trees and shrubs to be removed by wrapping blue plastic ribbon around the trunk and obtain the Owner’s Representative’s approval of all trees and shrubs to be removed prior to the start of tree and shrub removal. After approval, mark all trees and shrubs to be removed with blue paint in a band completely around the base of the shrub(s) and around the trunk of the tree(s) 4.5 feet above the ground.
C. Flag all trees and shrubs to remain with green plastic ribbon tied completely around the trunk or each tree and on a prominent branch for each shrub. Obtain the Owner’s Representative's approval of all trees and shrubs to remain prior to the start of tree and shrub removal.

D. Prior to any construction activity at the site including utility work, grading, storage of materials, or installation of temporary construction facilities, install all tree protection fencing, Geotextile Fabric, silt fence, tree protection signs, Geogrid, Mulch and or Wood Chips as shown on the drawing.

56.3.5 SOIL MOISTURE

A. Volumetric soil moisture level, in all soils within the Tree and Plant Protection Area shall be maintained above permanent wilt point to a depth of at least 8 inches. No soil work or other activity shall be permitted within the Tree and Plant Protection Area when the volumetric soil moisture is above field capacity. The permanent wilt point and field capacity for each type of soil texture shall be defined as follows (numbers indicate percentage volumetric soil moisture).

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Permanent wilt point v/v</th>
<th>Field Capacity v/v</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand, Loamy sand, Sandy Loam</td>
<td>5-8%</td>
<td>12-18%</td>
</tr>
<tr>
<td>Loam, Sandy clay, Sandy clay loam</td>
<td>14-25%</td>
<td>27-36%</td>
</tr>
<tr>
<td>Clay loam, Silt loam</td>
<td>11-22%</td>
<td>31-36%</td>
</tr>
<tr>
<td>Silty clay, Silty clay loam</td>
<td>22-27%</td>
<td>38-41%</td>
</tr>
</tbody>
</table>

1. Volumetric soil moisture shall be measured with a digital, electric conductivity meter. The meter shall be the Digital Soil Moisture Meter, DSMM500 by General Specialty Tools and Instruments, or approved equivalent meter.

B. The Contractor shall confirm the soil moisture levels with a moisture meter. If the moisture is too high, suspend operations until the soil moisture drains to below field capacity.

56.3.6 ROOT PRUNING

A. Prior to any excavating into the existing soil grade within 25 feet of the limit of the Tree and Plant Protection Area or trees to remain, root prune all existing trees to a depth of 24 inches below existing grade in alignments following the edges of the Tree and Plant Protection Area or as directed by the Owner’s Representative. Root pruning shall be in conformance with ANSI A300 Root Management Standard (part 8) latest edition.

1. Using an air excavation tool to expose roots within 2 feet of the limit of grading.
2. After completion of excavation, make clean cuts with a lopper, saw or pruner to sever roots so they will not be torn, ripped or damaged by the excavation, and backfill the trench immediately with existing soil, filling all voids.

56.3.7 INSTALLATION OF GEOGRIDS, GEOTEXTILE FABRICS, MATTING, WOOD CHIPS AND OR MULCH

A. Install geogrids, geotextile fabric, matting, wood chips and or mulch in areas and depths shown on the plans and details or as directed by the Owner’s representative. In general, it is the intent of this specification to provide the following levels of protection:

1. All areas within the Tree and Plant Protection area provide a minimum of 5 inches of wood chips or mulch.

2. Areas where foot traffic or storage of lightweight materials is anticipated to be unavoidable provide a layer of Filter Fabric under the 5 inches of wood chips or mulch.

3. Areas where occasional light vehicle traffic is anticipated to be unavoidable, provide approved matting or a layer of geogrids under 8 inches of wood chips or mulch.

4. Areas where heavy vehicle traffic is unavoidable provide approved matting or a layer of geogrids under 8 -12 inches of wood chips or mulch and a layer of matting over the wood chips or mulch.

B. The Owner’s Representative shall approve the appropriate level of protection.

C. In the above requirements, light vehicle is defined as a track skid steer with a ground pressure of 4 psi or lighter. A heavy vehicle is any vehicle with a tire or track pressure of greater than 4 psi. Lightweight materials are any packaged materials that can be physically moved by hand into the location. Bulk materials such as soil, or aggregate shall never be stored within the Tree and Plant Protection Area.

56.3.8 PROTECTION

A. Protect the Tree and Plant Protection Area at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Owner’s Representative of any spills, compaction or damage and take corrective action immediately using methods approved by the Owner’s Representative.
56.3.9 GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHIN THE TREE AND PLANT PROTECTION AREA:

A. The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner’s Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area may be indicated on the drawings along with any required remedial activity as listed below.

B. In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following:

1. In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or air excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

2. When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the Owner’s Representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

3. Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner’s Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices (ANSI A300, parts 1 and 8) and be performed by or direct under supervision of an ISA Certified Arborist.

4. Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

5. Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 8-foot-long 2-inch x 6-inch planks loosely banded onto the tree with 3 steel bands.
Staple the bands to the planks as necessary to hold them securely in place. Trunk protection may be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

6. Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

   a. Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric, tarp plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

   b. Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, rewet the soil as necessary to keep soil moisture near field capacity.

   c. Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

      i. The air excavation tool shall be either the “Air-Spade” as manufactured by Division of Guardair Corporation 47 Veterans Drive Chicopee, MA 01022 (800)-482-7324, or Supersonic Air Knife as manufactured by Easy Use Air Tools, Inc. Allison Park, Pa (866) 328-5723 or approved equal.

   d. Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner’s Representative.

   e. Remove all excavated soil and excavated wood chips, and contaminated soil at the end of the excavation.
f. Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

g. Dispose of all soil in a manner that meets local laws and regulations.

h. Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

i. Restore any geogrids, filter fabric, wood chips or mulch and or matting that was required for the area.

56.3.10 GRADING AND FILLING AROUND TREES

A. Maintain existing grade within drip line of trees. Any variance to this will be executed only after consultation and recommendation from the Campus Arborist.

B. Where existing grade is above new finish grade shown around trees, carefully hand excavate within drip line to new grade. Cut exposed roots approximately 3" below elevation of new finish grade. Engage an ISA certified Arborist to recommend procedures to compensate for loss of roots and to provide initial services such as pruning of branches and stimulation of root growth. Provide subsequent maintenance during contract period as recommended by the arborist. Provide Grounds Superintendent with typed instructions for recommended long range maintenance procedures to be followed after completion of construction operations.

C. For minor fills where the existing grade is 4" or less below elevation of finish grade shown, use a topsoil type fill material rich in organic matter and loamy in texture. Place in single layers not more than two inches at a time and do not compact.

D. Fills greater than four inches shall only be attempted after consultation with the Campus Arborist. Detailed shop drawings of proposed work shall be submitted and approved by the Campus Arborist prior to any work. A progress schedule shall be established to monitor the work.

56.3.11 TREE REMOVAL:

A. Tree removals shall be performed by ISA Certified Arborists and companies shall have appropriate licenses and insurance for tree removal operations.

B. Remove all trees indicated by the drawings and specifications, as requiring removal, in a manner that will not damage adjacent trees or structures or compacts the soil.
C. Remove trees that are adjacent to trees or structures to remain, in sections, to limit the opportunity of damage to adjacent crowns, trunks, ground plane elements and structures.

D. Do not drop trees with a single cut unless the tree will fall in an area not included in the Tree and Plant Protection Area and there are no underground utilities that may be damaged. No tree to be removed within 50 feet of the Tree and Plant Protection Area shall be pushed over or up-rooted using a piece of grading equipment.

E. Protect adjacent paving, soil, trees, shrubs, ground cover plantings and understory plants to remain from damage during all tree removal operations, and from construction operations. Protection shall include the root system, trunk, limbs, and crown from breakage or scarring, and the soil from compaction.

F. Remove stumps and immediate root plate from existing trees to be removed. Grind trunk bases and large buttress roots to a depth of the largest buttress root or at least 18 inches below the top most roots whichever is less and over the area of three times the diameter of the trunk (DBH).

1. For trees where the stump will fall under new paved areas, grind roots to a total depth of 18 inches below the existing grade. If the sides of the stump hole still have greater than approximately 20% wood visible, continue grinding operation deeper and or wider until the resulting hole has less than 20% wood. Remove all wood chips produced by the grinding operation and back fill in 8 inch layers with controlled fill of a quality acceptable to the site engineer for fill material under structures, compacted to 95% of the maximum dry density standard proctor. The Owner’s Representative shall approve each hole at the end of the grinding operation.

2. In areas where the tree location is to be a planting bed or lawn, remove all woodchips and backfill stump holes with planting soil as defined in Specification Section Planting Soil, in maximum of 12 inch layers and compact to 80-85% of the maximum dry density standard proctor.

G. Wood salvaged for up cycling will be identified by the Owner’s Representative.

1. Sections of salvaged wood shall have a clean, flat cut across both ends.

2. Ends of wood sections shall be sealed with AnchorSeal after being cut and before being loaded. Branch cuts on the length of wood sections shall be sealed with AnchorSeal.

3. Care shall be taken when loading wood and logs not to damage the bark connection to the wood.

4. Wood and logs shall be stored so there is no contact with the ground. Wood and logs should be elevated from the ground by placing on cross beams of wood, concrete or steel. Wood and logs may also be stored on a gravel, concrete or asphalt pad.
56.3.12 PRUNING:

A. Within six months of the estimated date of substantial completion, prune all dead or hazardous branches larger than 2 inch in diameter from all trees to remain.

B. Implement all pruning recommendations found in the Arborist Report.

C. Prune any low, hanging branches and vines from existing trees and shrubs that overhang walks, streets and drives, or parking areas as follows:
   
   1. Walks - within 7 feet vertically of the proposed walk elevation.
   2. Parking areas - within 10 feet vertically of the proposed parking surface elevation.
   3. Streets and drives - within 12 feet vertically of the proposed driving surface elevation.


E. Perform other pruning task as indicated on the drawings or requested by the Owner’s Representative.

F. Where tree specific disease vectors require, sterilize all pruning tools between the work in individual trees.

56.3.13 TREE (Plant) GROWTH REGULATOR APPLICATION (TGR/PGR)

A. At the start of, or prior to, the construction contract period, treat all trees indicated on the Plan with Tree Growth Regulator at the recommended rates, time of year and methods indicated by the product distributor.

56.3.14 WATERING

A. The Contractor shall be fully responsible to ensure that adequate water is provided to all plants to be preserved during the entire construction period. Adequate water is defined to be maintaining soil moisture above the permanent wilt point to a depth of 8 inches or greater.

B. The Contractor shall adjust the automatic irrigation system, if available, and apply additional water, using hoses or water tanks as required.

C. Periodically test the moisture content in the soil within the root zone to determine the water content.

56.3.15 TURF AND WEED MAINTENANCE

A. Turf areas within the Tree and Plant Protection area shall be maintained in a manner that is consistent with University turf maintenance standards. This includes mowing, weed eating, edging, fertilization, weed control and leaf collection.
B. During the construction period, control any plants that seed in and around the fenced Tree and Plant Protection area at least three times a year.

    1. All plants that are not shown on the planting plan or on the Tree and Plant Protection Plan to remain shall be considered as weeds.

C. At the end of the construction period provide one final mowing and weeding of the Tree and Plant Protection Area.

56.3.16 INSECT AND DISEASE CONTROL

A. Monitor all plants to remain for disease and insect infestations during the entire construction period. Provide all disease and insect control required to keep the plants in a healthy state using the principles of Integrated Plant Management (IPM). All pesticides shall be applied by a certified pesticide applicator.

56.3.17 CLEAN-UP

A. During tree and plant protection work, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.

    1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once tree protection work is complete, wash all soil from pavements and other structures. Ensure that Mulch is confined to planting beds.

C. Make all repairs to grades, ruts, and damage to the work or other work at the site.

D. Remove and dispose of all excess Mulch, Wood Chips, packaging, and other material brought to the site by the Contractor.

56.3.18 REMOVAL OF FENCING AND OTHER TREE AND PLANT PROTECTION

A. At the end of the construction period or when requested by the Owner’s Representative remove all fencing, Wood Chips or Mulch, Geogrids and Geotextile Fabric, trunk protection and or any other Tree and Plant Protection material.

END OF SECTION