

ADDENDUM No. 3

Early Subcontractor Involvement (ESI) 010 - Building Demolition

Competitive Negotiation

This addendum provides information to clarify or adjust construction items which may affect any or all trade contractors. The original documents for the referenced project are amended as noted in this addendum and made part of said documents.

GENERAL

- 1) Updated 00 41 00.01 Bid Breakdown Forms attached. Please note additional unit prices listed to include on your bid breakdown response
- 2) RFI log including responses attached
- 3) Reference specification section 02 41 00, part 3.3 *Items Salvaged for Owner*. Please add the following items to part 3.3A:
 5. Existing electrical switch behind the Seedhouse.
 6. Existing electrical gear and transformers (newer room located in Seedhouse basement). Storage will be at a location on the current site / future Chandler Expansion project site.
 7. Existing transformers onsite serving UK AG North and Garrigus Buildings. Storage will be at a location on the current site / future Chandler Expansion project site.
- 4) Reference *ESI-10 – BP#002.00 Demolition and Abatement Work Scope*, exhibit B.2 section 7 (Allowances). Increase additional abatement allowance from \$50,000 to \$250,000. Note, bid breakdown form included in this addendum has been updated.
- 5) Reference *ESI-10 – BP#002.00 Demolition and Abatement Work Scope*, exhibit B.2 section 7 (Allowances). Add allowance #4 for the investigation & abatement of the Garrigus Cooling. Note, bid breakdown form included in this addendum includes this added allowance.
- 6) Reference *ESI-10 – BP#002.00 Demolition and Abatement Work Scope*. ADD work scope item to Exhibit B.2. Add # 4.21f as follows to the demolition narrative:
 - f. The existing Pavilion A canopy is available for demolition starting June 2027. This demolition area will require extremely high coordination, dust and debris control and detailed planning with WTJV, the University, and UK Healthcare. (Addendum #3)
- 7) Reference *ESI-10 – BP#002.00 Demolition and Abatement Work Scope*. Modify Exhibit B.2, work scope item #4.24 to ADD "Pavilion A Canopy" to the structures listed in the first paragraph.
- 8) Reference *ESI-10 – BP#002.00 Demolition and Abatement Work Scope*. ADD work scope item to Exhibit B.2. Add # 4.24v as follows:
 - v. Include a phased demolition of the entire ground / 1st floor structural canopy attached to the south side of Pavilion A. This includes all make safe MEP and otherwise disconnects, separation from the building, all masonry walls and concrete columns, roofing, skylights, etc. Remove all utilities back to the source in Pavilion A and/or tunnels.

Reference all project drawings and specifications and specifically sheet 3.2-AD100. This area will require extremely high coordination, dust and debris control and detailed planning with WTJV, the University, and UK Healthcare. This contractor is to include work that will occur during off-hours and night time work hours. This contractor shall include four (4) mobilizations and demolition phases for this scope to work with the UK Emergency Department and the installation of the new temporary canopy in concert with the demolition. Leave each phase in a safe condition for hospital operations to work until full demolition is achieved. This includes to providing temporary utilities to the existing lighting, fire protection, life safety systems and like systems during demolition phasing.

Ensure weather tight conditions at Pavilion A after demolition and removal of each phase and in the final condition after demolition.

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Design & Documents

- 9) In Reference the Chase Environmental phase 1 and phase 2 reports included in exhibit 00 24 13.02, WTJV wants to make sure that bidders read and include details listed in the answer to RFI question #147.
- 10) Please see attached additional information for Exhibit 00 24 13.02-5 (Asbestos, PCBs (Caulk) and Hazardous Containing Materials Inspection Report, **Ag North**). Specifically sections associated with Table of Contents section 1.0 thru 4.0 (items missing from original reports).
- 11) Please see attached additional information for Exhibit 00 24 13.02-5 (Asbestos, PCBs (Caulk) and Hazardous Containing Materials Inspection Report, W.P. **Garrigus** Building). Specifically sections associated with Table of Contents sections 1.0 thru 4.0 (items missing from original reports).
- 12) Pre-Demolition Geotechnical Exploration Report by S&ME, dated March 10, 2025 is included with this addendum.

End of Addendum

SECTION 00 41 00 - BID BREAKDOWN FORM

Company Name:

Scope of Work : BP #002.01 Building Demolition (Addendum 3)

Item	Bid Quantities	Quantity	U/M	Unit Price	Total
001	Preconstruction Assistance	1	LS		
002	Abatement				
003	AGC North	1	LS		
004	Garrigus Building	1	LS		
005	Environmental Quality Management	1	LS		
006	Head House, Greenhouses & Seed House	1	LS		
007	Demolition				
008	AGC North	1	LS		
009	Garrigus Building	1	LS		
010	Environmental Quality Management	1	LS		
011	Head House, Greenhouses & Seed House	1	LS		
012	Pavilion A Canopy	1	LS		
013	General Site Removals, Grading & Backfill	1	LS		
014	Asphalt Paving	1	LS		
015	GC/GR	1	LS		
	Allowances (To be included in Base Bid on Bid Form)				
001	Additional abatement (over and above the hazardous material reports)	1	LS	\$ 250,000	\$ 250,000
002	Utility backfeeds	1	LS	\$ 75,000	\$ 75,000
003	Temporary shoring	1	LS	\$ 150,000	\$ 150,000
004	Garrigus Cooling Tower Investigation & Abatement	1	LS	\$ 50,000	\$ 50,000
	TOTAL BASE BID				
	Alternates (NONE)				
	Cost for Perfomance and Payment Bond (not included in the total above)	1	LS		
	Unit Prices - To be included in the Subcontract				
Unit Price 1	Provide 50 LF of shoring and lagging wall, drilled into rock. Assume 10' height	50	LF		
Unit Price 2	Provide 50 LF of temporary 2" water line installed 36" below grade	50	LF		
Unit Price 3	Provide 50 LF of temporary 480V, 3-phase electrical service installed 36" below grade	50	LF		
Unit Price 4	Provide unit price for 9'x9" or 12"x12" VCT Tile removal (asbestos materials)	500	SF		
Unit Price 5	Provide unit price for 6" dia pipe elbow removal (asbestos materials)	1	EA		
Unit Price 6	Provide unit price for removal of PCB Containing Caulk (Building windows / doors)	100	LF		
Unit Price 7	Provide unit price for removal of PCB Containing Caulk (EXTERIOR Greenhouse)	100	LF		
Unit Price 8	Provide unit price for removal of gypsum board mud (asbestos materials)	200	SF		

Walsh Turner JV
01 26 13 Requests for Information Log
Project: UK Chandler ESI-10 Demolition and Abatement
Bid Date: 10/20/2026
RFI Deadline: 10/6/2026

RFI Number	Question	Date Logged	Response
1	Please supply as-builts including Structural, Architectural, and Civil at minimum.	9/22/2026	Included with Addendum 1
2	When is the proposal due?	9/22/2026	Proposals are due 10/20/26 by 3 PM EST
3	Section 1.9; Section 00 62 00 - Please confirm the required Contractor Controlled Insurance Program limits and advise whether a final CCIP Manual will be issued prior to the October 15 proposal deadline. If final limits are not available by that date, please confirm that a certificate evidencing current coverage is acceptable at submission with a conforming certificate to follow upon issuance of the final manual.	9/24/2026	The final CCIP manual will not be issued prior to the proposal deadline. Please reference the manual included with the bid information. We expect that that this contract will be marked as "excluded" from the CCIP. Please reference additional insurance requirements listed in the work scope Exhibit B.2 document, item 4.22.
4	Section 3.4; Section 00 52 34, Exhibit D; Section 00 61 00 - Section 3.4 directs bidders to Section 00 52 34 Exhibit D for Subcontractor Default Insurance information. The Table of Contents identifies Exhibit D as Insurance Requirements and lists Section 00 61 00 Subcontractor Default Insurance as future and to be determined. Please clarify which document governs the SDI program and advise when Section 00 61 00 will be issued.	9/24/2026	00 52 34 documents will govern and will be updated to this specific RFP at time of contract. The SDI program will be in place for the scheduled work. For the purpose of this RFP submission, please include the requested bonding information for evaluation to the forthcoming SDI program. Bond costs should be listed below the line, not within the base bid total.
5	Section 3.4 states the subcontractor will complete a Subcontractor Questionnaire to qualify for the SDI program. Please issue the questionnaire and confirm whether it is to be returned with the October 15 proposal or following selection.	9/24/2026	see question 5. This will be completed in the future and not necessary for your bid proposal response.
6	Section 3.4 instructs that payment and performance bond cost be excluded from the base proposal and provided separately. Please confirm whether that cost is to be expressed as a percentage of contract value or as a lump sum, and whether the dual obligee form at Exhibit H.1 is to be assumed for pricing purposes.	9/24/2026	A percentage is fine for our review purposes. Yes, use the forms included.
7	Section 4.6; Section 6.8; Form 00 41 00.01 - Section 4.6 states the estimate is to be categorized according to a template to be provided by Walsh Turner JV in the future. Please advise when that template will be issued. If it will not be available before the proposal deadline, please confirm that Bid Breakdown Form 00 41 00.01 and the Section 6.8 cost categories are the governing format.	9/24/2026	Please complete the bid breakdown form for your initial proposal submission. For future estimating purposes, we are willing to work with the selected contractor on an appropriate breakdown.
8	Walsh Turner JV has indicated the Asbestos Report and Hazardous Materials Survey are forthcoming. Please confirm the anticipated issue date and confirm the survey will address asbestos containing materials, lead based paint, PCBs in light ballasts, caulks and transformers, mercury containing devices, refrigerants, and universal waste. Please confirm whether abatement is included within BP #002.01 and, if so, how quantities and conditions not identified in the survey are to be handled following award, whether by allowance, unit price or contingency.	9/24/2026	Please see information contained in addendum #1
9	Please identify the party responsible for cutting, capping and making safe all utilities serving ESI 10 at the point of demarcation, including medical gas, steam and condensate, chilled water, domestic water, sanitary and storm sewer, normal and emergency power, telecommunications and data, and fire alarm. Please confirm whether the Owner or Walsh Turner JV will perform any of this work in advance of demolition and whether any disconnection requires a scheduled outage window approved by UK HealthCare.	9/24/2026	This work is required by the ESI-010 trade contractor. This is a full service demolition package. Yes, outages with the client will be required.
10	Please provide permitted working hours and days, any blackout dates or periods tied to clinical operations, noise and vibration limits applicable at adjacent occupied buildings, and the infection control risk assessment and interim life safety measures the demolition subcontractor will be required to maintain. Please also identify approved haul routes, gate locations, staging and laydown areas, and any restrictions on crane or equipment operation near the campus.	9/24/2026	Work hours and other information referenced in this question are in the bid documents. WTJV would expect coordination of work hours and haul routes, and other details to be coordinated during the preconstruction time period ahead of the field work start. reference logistics exhibits for planned gate locations. The Cooper gate will be the main gate for hauling entry and exit
11	Please confirm whether the scope includes removal of foundations, slabs on grade, basements and other below grade structures, and if so the depth of removal. Please provide backfill material and compaction requirements and the extent of site restoration expected. Please identify locations where ESI 10 connects to occupied structures and advise whether temporary partitions, weather enclosures or structural separation at those interfaces are within this package.	9/24/2026	Yes, all sub-surface conditions noted within the bid documents are included. We do not anticipate partial building demolition of occupied areas needing temporary partitions. Please note, some back feeding of utilities will be needed for UK AG North and Garrigus prior to Seed House / Head House demolition start in March 2027.
12	Please confirm ownership of structural steel, non ferrous metals, mechanical and electrical equipment and other materials of value generated by the demolition, and whether the Owner expects a salvage credit to be reflected in the proposal.	9/24/2026	No salvage credit is expected. Please note the salvage items list noted in the bid documents.
13	Please identify which party is responsible for obtaining the demolition permit, the NESHAP notification, air quality permits and any other Lexington Fayette Urban County Government or Commonwealth of Kentucky approvals, and which party carries the associated fees.	9/24/2026	ESI-010 trade partners carries all permit and costs associated with them.
14	Please confirm whether prevailing wage rates or a project labor agreement apply to this bid package and provide the applicable wage determination. This governs Bid Breakdown Form 00 41 00.01 and the labor rates submitted on Form 00 43 26.	9/24/2026	Per the bid documents and the state of Kentucky requirements, there are no prevailing wage or PLA requirements
15	The Response Agreement holds the proposal as a firm offer for 120 calendar days from submission. The estimate is prepared from ESI documents with Design Development and Construction Documents not anticipated until first quarter 2027. Please confirm which elements of the proposal are binding for the 120 day period, specifically whether the commitment extends to the lump sum preconstruction price and construction phase fee percentage only, or to the estimate as well.	9/24/2026	The proposal iGMP is held for 120 days and this becomes the basis for our preconstruction work as a guarantee maximum price for the work. Please account for any escalation or other known market factors
16	Please confirm whether original construction drawings, structural as built drawings, prior renovation drawings, geotechnical reports, boring logs and campus utility maps for ESI 10 and the immediate site will be issued through SmartBid, and the anticipated date of issue.	9/24/2026	Please see information contained in addendum #1 and the Geotechnical report included in addendum 3
17	Please provide the building data for ESI 10: year of original construction and additions, number of stories above and below grade, gross square footage, structural framing system (steel, cast in place concrete, precast, masonry bearing), floor system, foundation type (spread footings, caissons, piles, mat), roof construction and exterior envelope materials.	9/24/2026	Please see information contained in addendum #1

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18	Please identify any shared structural elements between ESI 10 and adjacent buildings, including party walls, common foundations, shared columns, connecting bridges, canopies and tunnels, and state whether the design team has evaluated the stability of adjacent structures after separation. Please confirm responsibility for any shoring, underpinning or temporary bracing of adjacent structures.	9/24/2026	Please see information contained in addendum #1. Any retention or shoring, etc. is the responsibility of the ESI-010 trade partner
19	Please identify all utility tunnels, steam distribution, chilled water mains, electrical duct banks, telecommunications conduits and storm or sanitary trunk lines that pass beneath or through the ESI 10 footprint and serve other campus buildings, and confirm which must remain live and protected during demolition.	9/24/2026	Please reference the current utility information contained in the drawing set. Reference question 12 for the utilities that need coordination with the early March 2027 start.
20	Please confirm whether ESI 10 houses any central plant equipment, electrical feeders, medical gas manifolds, emergency generators, transfer switches, telecommunications head end or fire alarm panels that serve buildings outside the demolition footprint, and whether relocation of those services is complete before turnover.	9/24/2026	Please reference the current utility information contained in the drawing set. We anticipate most services to be off prior to the demolition start in May 2027. We expect to work with the selected contractor during preconstruction to finalize the demolition work plan.
21	Please confirm whether bidders may conduct a walk through of the ESI 10 building and site prior to the October 15 deadline, the scheduling process, escort requirements and any UK HealthCare badging or health screening required for entry.	9/24/2026	Tour information were previously sent in addendum #1
22	Please provide the date on which ESI 10 will be fully vacated and decommissioned by UK HealthCare and turned over for demolition. Please confirm that furniture, fixtures and equipment, medical equipment, patient records, pharmaceuticals, regulated medical waste, sharps and laboratory materials will be removed by the Owner prior to turnover.	9/24/2026	Buildings will be vacated and any medical waste and sensitive information will be removed
23	Please confirm whether ESI 10 contains or previously contained nuclear medicine, radiation oncology, diagnostic imaging, clinical laboratory, pharmacy compounding or morgue functions, and whether radiological clearance surveys, decommissioning of shielded rooms and lead lined partitions, and removal of any licensed sources will be completed and documented by the Owner before turnover.	9/24/2026	Where applicable, proper decommissioning of these spaces will be completed prior to turnover
24	Please confirm whether the forthcoming survey will include refrigerant inventories for HVAC and medical equipment, fuel oil in generator day tanks and belly tanks, hydraulic oil in elevators, transformer oil PCB status, lamp and ballast counts, batteries, smoke detectors with radioactive sources, and mercury in thermostats, switches and lab equipment, or whether the demolition subcontractor is to inventory and manage these items.	9/24/2026	ESI-010 contractor is to properly review and handle these for demolition. Any specific details can be reviewed during preconstruction
25	For the forthcoming Asbestos Report, please confirm it will be a pre demolition survey compliant with NESHAP 40 CFR 61 Subpart M and Kentucky Division for Air Quality requirements, including destructive sampling of concealed spaces, and will identify friable and non friable Category I and II materials with quantities by location.	9/24/2026	Please see information contained in addendum #1
26	For the forthcoming Asbestos Report, please confirm it will be a pre demolition survey compliant with NESHAP 40 CFR 61 Subpart M and Kentucky Division for Air Quality requirements, including destructive sampling of concealed spaces, and will identify friable and non friable Category I and II materials with quantities by location.	9/24/2026	Please see information contained in addendum #1
27	Please provide the anticipated notice to proceed for demolition, the required substantial completion date, any interim milestones tied to the follow on Expand Patient Care Facility construction, and confirm whether liquidated damages apply and at what daily rate.	9/24/2026	Please reference the schedule contained in the bid information. LDs are noted in the Special Conditions. WTJV to work with the trade partner selected for this package to minimize any potential LD impacts.
28	Please confirm whether the Gantt chart required under Section 4 approach item g is to be prepared at the ESI level of definition only, and whether Walsh Turner JV will provide the master project schedule or milestone dates against which the demolition sequence should be aligned.	9/24/2026	Please reference the schedule contained in the bid information. WTJV to work with selected trade partner to finalize demolition plan and sequence to support the overall new construction critical path.
29	The preconstruction price is lump sum. Please define the expected preconstruction deliverables during the Competitive Negotiation Services period of November 9, 2026 through May 1, 2027, including number of estimate iterations, design review cycles, value engineering workshops, meeting cadence and attendance expectations, and the anticipated staffing hours by role.	9/24/2026	We expect the selected trade partner to bring the needed expertise to finalize the demolition plan, sequencing, and critical details needed for a successful completion. Trade partner will be expected to plan with WTJV, design team and the Owner during this preconstruction time frame.
30	Please define which items are treated as reimbursable cost of work, which are general conditions and general requirements, and which are deemed included within the fee percentage. Please address project management, superintendence, safety staff, small tools, consumables, temporary facilities, mobilization and demobilization, and home office support.	9/24/2026	Please reference the RFP bid information
31	Please confirm whether the recommended contingency is to be contractor held or Owner held, whether it is carried inside or outside the GMP, and the approval process and turnaround time for contingency expenditures.	9/24/2026	Project contingency is held both by WTJV (in GMP) and the owner (outside of GMP)
32	Please confirm the reference date to be used for current day dollars and the assumed construction midpoint for the escalation recommendation, and whether escalation is to be presented as a percentage, a lump sum or a range.	9/24/2026	Use the date of your proposal for reference date. Provide recommendation for escalation value.
33	Please confirm the retainage percentage, the conditions and timing of retainage release, the pay application cycle and payment terms from approval, and whether stored materials and demobilization are eligible for payment.	9/24/2026	Please reference the bid information contained in the RFP
34	Please confirm whether proposed exceptions or clarifications to the subcontract form at Section 00 52 34 may be submitted with the proposal and whether such exceptions affect scoring.	9/24/2026	WTJV is expecting a complete proposal per the RFP requirements. Any incomplete proposals will effect final scoring.
35	Please confirm whether the Owner or Walsh Turner JV will provide pre condition surveys of adjacent structures, crack monitoring, seismographs, perimeter dust and PM10 monitoring, and noise monitoring, or whether the demolition subcontractor is to furnish and report these. Please provide the vibration limit in peak particle velocity, the dust action level and the noise limit in dBA at the nearest occupied facade.	9/24/2026	Please reference the bid information contained in the RFP for these requirements. WTJV expects a pre-demolition survey of the adjacent buildings and vertical structures which stay after the new construction.

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36	Please identify any vibration sensitive equipment in adjacent buildings, including MRI, CT, linear accelerators, surgical microscopes and laboratory instruments, and provide the distance from the ESI 10 footprint and any manufacturer vibration criteria that must be met.	9/24/2026	This work is adjacent to a major medical facility, the ESI-010 trade partner shall include necessary requirements. Please also reference the bid information contained in the RFP
37	Please confirm any restrictions on demolition methods, including prohibition of implosion, limits on high reach excavator operation, requirements for floor by floor deconstruction adjacent to occupied structures, wind speed shutdown criteria for elevated work, and any restriction on crane swing over occupied buildings or pedestrian routes.	9/24/2026	Implosion is not allowed. This work is adjacent to a major hospital area and located on a major University campus. All work plans and cost details should account for these important conditions.
38	Please confirm whether on site concrete crushing and processing is permitted, whether crushed material may be used as backfill within the footprint, and the compaction specification and testing frequency for backfill.	9/24/2026	Trade partners should include this type of planning in their response for consideration. WTJV does intend to utilize crushed materials for site roads and project areas.
39	Please identify the location of all fresh air intakes serving adjacent buildings, confirm whether UK HealthCare will modify or filter those intakes during demolition, and confirm the dust suppression measures required, including water application, misting cannons, perimeter screening and wheel wash.	9/24/2026	Please reference exhibit B.2 work scope for these details. Pavilion A's main air intakes are on the western side of the facility.
40	Please provide the fire protection impairment procedure, the process for coordinating fire alarm and sprinkler isolation with the hospital fire marshal, and confirm whether ESI 10 demolition affects any exit discharge, fire lane or ambulance route serving adjacent occupied buildings.	9/24/2026	These details require close coordination, and planning with the University. Include proper controls for work of this location and size. Proper details for work plans will be finalized during preconstruction.
41	Please confirm whether a helipad or air ambulance flight path exists on or near the campus and identify any height, crane or dust restrictions imposed by flight operations.	9/24/2026	Fight paths for the adjacent hospitals do exist. Height restrictions for cranes and other equipment should be included in your response to this RFP. These details will be finalized during preconstruction.
42	Please identify who provides construction power and water, perimeter fencing and gates, site lighting, covered pedestrian walkways, temporary signage and traffic control, and confirm whether any street, sidewalk or parking closures are permitted and who obtains the LFUCG right of way permits.	9/24/2026	Please reference exhibit B.2 work scope for these details. WTJV is expecting a complete and detailed work scope and operational plan.
43	Please confirm whether crew parking, office trailer space and material laydown will be provided on campus or must be sourced off site by the demolition subcontractor.	9/24/2026	WTJV will work with the selected contractor for onsite office space. Parking will need to be sourced offsite.
44	Please confirm whether Owner designated disposal or recycling facilities apply, whether waste manifests and weight tickets are required for open book accounting, and whether LEED or a waste diversion percentage target applies to this package.	9/24/2026	No designated facility. Pleas review specifications for these details and specifically LEED needs.
45	Please confirm whether a Stormwater Pollution Prevention Plan and KPDES construction general permit coverage are required for this package or are carried under the overall project permit, and who prepares, files and maintains them.	9/24/2026	WTJV will carry the overall KY10 permit. Please review the B.2 work scope for SWPPP work details and needs.
46	Please identify existing trees, landscaping, monuments, signage, pavements and utilities outside the footprint that must be protected and restored, and confirm the final surface condition required at completion, whether rough grade, compacted stone, topsoil and seed, or pavement.	9/24/2026	Please reference the included drawings, specifications, and work scope for these details.
47	Please confirm responsibility for construction survey, layout of demolition limits, and post demolition topographic survey, and whether a licensed surveyor is required.	9/24/2026	Please provide a post demolition topographic survey by a license surveyor. WTJV to provide bench markers and control points.
48	Please confirm workforce requirements for campus access, including background checks, drug testing, badging, hospital orientation, OSHA 10 or OSHA 30 training, tobacco free campus policy and any immunization or health screening requirements.	9/24/2026	Please reference the included safety plan exhibit for this information
49	Please confirm whether MBE, WBE, veteran owned or local workforce participation goals apply to this package, whether they are scored, and how participation is documented.	9/24/2026	There are no participation goals.
50	Please confirm the interview format, duration, location, required attendees and whether presentation materials are permitted, and confirm whether references will be contacted before or after the interview session.	9/24/2026	This information will be transmitted to the successful short list contractors. Presentation materials will be permitted.
51	Please confirm whether Walsh Turner JV expects a single point of contact for the demolition subcontractor during preconstruction and whether a dedicated preconstruction manager is required to be based in Lexington.	9/24/2026	WTJV does expect a single point of contract and the manager does not need to be based in Lexington during preconstruction
52	Exhibit B.2, 24.f. Refers to SWPPP installations for the entire project. Does this include SWPPP maintenance and reporting for the new construction project or during the BP#002.00 Demolition and Abatement package?	9/24/2026	Yes, this includes installation and maintenance during the demolition and abatement. The intent is to hand this off to the next work package once demolition work is completed
53	Please confirm the asphalt drive indicated in Brown on the logistics plans is to be furnished and installed by BP#002.00 Demolition & Abatement. If so, is the intent to install pavement post demolition? There appears to be portions of existing asphalt/concrete pavement in areas of proposed Gravel and Asphalt Site Roadways, is it acceptable to utilize existing asphalt/concrete pavement in leu of new temporary asphalt site roadways?	9/24/2026	Yes, the intent is this scope to be installed NEW under this package so the areas can be used for the subsequent trades. Existing asphalt grading will not work with new planning. Please include new asphalt with 6" gravel base (can be recycled demo debris of proper size) where indicated by "Gravel and Asphalt Base". Reference exhibit B.2 work scope item 4.28 for additional details. Note, roadways are shown for planning purposes and are not intended as different specifications. WTJV intends to stripe at later date. For bidding purposes, include an area of 37,600 square-yards (SY) of new gravel and asphalt area
54	Please confirm the Gates indicated within the Green and Blue lines on the site logistics plan are existing and NIC. If so, does this include Mud Mats at those gate locations?	9/24/2026	Any gates and mud mats located in fencing noted NIC is by others
55	Please clarify the intent of the Gravel and Asphalt Area indicated on the site logistic plan. Are we to assume spreading recycled concrete generated form the demolition over these areas? Are we to include installation of asphalt pavement in these areas?	9/24/2026	Please reference answer to questions 54. WTJV to plan the three(3) mobilizations in concert with the completion of the demolition phases and areas.

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56	Exhibit B.2, 35. Refers to providing three (3) Restroom Trailers, are these trailers to be purchased and remain onsite after completion of BP#002.00 Demolition and Abatement package? Are we to assume all maintenance after completion of BP#002.00 Demolition and Abatement will be provided by others? Can the proposed location of each restroom trailer be provided to estimate utility service requirements?	9/24/2026	Yes, these shall be purchased and remain. Include maintenance during the time of your contract. The intent is to hand this off to the next work package once demolition work is completed
57	Exhibit B.2, 24.I. Refers to cutting and capping utilities 5’ outside the existing building structure however, the Site Demolition Plans indicates a vast majority of site utilities to be removed. Are we to include removal of underground utilities noted for removal on the Demolition Plans?	9/24/2026	Include removal as shown on the drawings.
58	Exhibit B.2, 24.m. Refers to rerouting utilities under the Seed House to keep adjacent onsite buildings operational until May 1, 2027. Can the type and location of utilities to be rerouted be provided? Would it be possible/acceptable to begin Seed House demolition March 15, 2027, leaving building slabs and foundation until May 1, 2027, to protect the underground utilities serving adjacent onsite buildings?	9/24/2026	The primary utilities are chilled water, steam, and the electrical power. WTJV is open to conversation regarding these details. The goal is for an "earlier" start of excavation and foundation work for the hospital in this area
59	Are all basements, foundations, and tunnel voids to be backfilled, with exception of those indicated on plan 3.2-CB101? If so, is it acceptable to utilize crushed recycled concrete to backfill basements and tunnels? Is compaction testing provided by the owner or by BP#002.00 Demolition and Abatement?	9/24/2026	Yes, except for the basements. Per the work scope, backfill foundations and tunnel voids back to the surrounding grade. Utilize suitable, compactable materials that will support future construction. Testing and special inspections are by the design team.
60	Can existing structural drawings of each building to be demolished be provided?	9/24/2026	Included with Addendum 1
61	010000S01-Special Conditions-Construction Manager at Risk #16.1.1 Refers to Construction Manager shall provide electrical pedestrian and general lighting along top rail of perimeter construction fence, will this be provided by the Construction Manager or Demolition and Abatement contractor? Furthermore, #16.1.4 Shall green fabric mesh be installed on construction fence by Construction Manager or Demolition and Abatement contractor?	9/24/2026	Per the B.2 work scope, the demolition & abatement contractor shall provide fencing, electrical lighting, and fabric mesh. Please provide fabric blue in color.
62	Construction Documents Project Manual - Appendix A: HVAC Controls Salvage List. Will these items be salvaged by the University or Demolition and Abatement contractor?	9/24/2026	Appendix is owner's salvage list. Please also note additional items noted in specification section 02 41 00, 3.3
63	We have reviewed the insurance requirements with our provider and have been advised that obtaining the specified limits would result in a significant additional project-specific insurance cost that would need to be carried in our proposal. Would WTJV/UK consider reducing the required general/excess liability limits for the demolition and abatement scope to a more customary level? If the current per-occurrence limit must be maintained, would WTJV/UK alternatively consider revising the requirement to \$25,000,000 per occurrence / \$25,000,000 aggregate?	9/30/2026	Due to the size, scale and location of this demolition work, the insurance requirements cannot be modified.
64	Please clarify the required extent of abatement for the PCB-containing materials. Are we required to remove any substrate or adjacent materials that are in contact with the PCB-containing caulking, or is the scope limited to removal of the PCB-containing materials themselves? If removal of the substrate is required, please clarify how much of the affected substrate must be removed beyond the area in direct contact with the PCB-containing material.	10/1/2026	Reference addendum #1 issued. Please review the full environmental phase 1 and phase 2 reporting to understand and include the entire abatement work details. Consult your environmental consultant to finalize these work details.
65	Will subsurface or geotechnical information be made available to bidders before the proposal date? Specification 31 20 00 Earth Moving, 1.02.D.5, lists a 'Pre-Demolition Geotechnical Exploration Report by S&ME, Inc. dated March 10, 2025' among the standards materials and methods of construction must comply with. Supplementary Conditions Article 05.1 states 'No subsurface or geotechnical survey information is available at this time', while Exhibit B.2 sec. 4.24.b requires complete removal of foundations, spread footings, grade beams, elevator pits and deep foundations (piers), and Exhibit B.2 sec. 8 requires an all-inclusive unit price for rock-drilled shoring.	10/2/2026	Please see Pre-Demolition Geotechnical Exploration Report by S&ME, dated March 10, 2025 included in addendum 3
66	Exhibit 00 24 13.02-5 (Asbestos, PCBs and Hazardous Containing Materials Inspection Report, Ag North) as issued contains only the cover page and Appendices A through E. Unlike its four sibling reports it has no 1.5 Results table, no 1.6 Findings and Conclusions, no 2.0 PCB in Caulk section and no 3.0 Hazardous-Containing Materials section. Please issue the complete Ag North report, including the ACM and PCB quantity tables, before the 10/02/2026 RFI deadline.	10/2/2026	Please see requested sections contained in addendum 3. Environmental reporting contains existing room and other locations to quantify. Reports contain the details necessary for this initial iGMP proposal. Additional clarifications and details can be finalized during preconstruction.
67	Exhibit B.2 4.25.c directs bidders to 'the documents and report prepared by S&ME for Hazardous Materials Assessment for materials for known materials to be abated as part of this scope of work.' Every issued Phase-2 hazardous-materials report was prepared by Chase Environmental Group (Project No. F2406035, dated 01/31/2025), and the Phase 1 report was performed by Atlas. None were prepared by S&ME. Please confirm whether a separate S&ME hazardous-materials assessment exists and, if so, issue it.	10/2/2026	Disregard item Exhibit B.2 4.25.c, this was included in error. All reports completed by Chase Environmental are the only reports.
68	Please confirm whether any underground storage tank removal, state-approved closure under 401 KAR 42:060, or soil and groundwater characterization is within the Demolition package. If so, please provide details. Drawing 3.2-CD101 General Sheet Note 24 makes the contractor responsible for verifying the presence of any UST that may conflict with site or building demolition and 'fully responsible for any damage, including any environmental remediation as a result of the damage,' while drawing 3.2-DB101 shows 'UNDERGROUND FUEL TANKS' adjacent to vendor parking and the CB101/CD101 legends carry an 'UNDERGROUND JET FUEL LINE' and a 'GAS MONITORING WELL' inside the work area. Exhibit B.2 carries no UST scope item and no closure allowance, so the exposure is currently unpriced and unbounded. DWG 3.2-CD101 Gen. Note 24; DWG 3.2-DB101; DWG 3.2-CB101 and 3.2-CD101 legends; Exhibit B.2 4 and 7 pp.3-10 (no UST item or allowance)	10/2/2026	Per note 24 on Drawing 3.2-CD101, the demolition and abatement contractor shall verify the presence of any UST within the demolition limits per the website listed. If any USTs are listed, note any details found in your proposal for review and consideration. Do not include any costs to remove USTs at this time.

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69	Utility back-feeds, base bid vs. Allowance 2 Exhibit B.2 refers to utility back-feeds in four places: •§4.21.e: "Demolition of the Seed House/Head House/Greenhouses prior to May 1 2027 will require that this contractor provide temporary utility back feeds for all other buildings on site and within the University." •§4.24: "...including all MEP work, details, shutoffs, make safe and back feeds as necessary and described." •§4.24.m: "Provide all Steam and Chilled Water work necessary for any rerouting and back feeds to support any and all adjacent building to the Chandler site area... Any utilities to keep the surrounding buildings directly onsite operational until May 1, 2027, need to be back feed and rerouted accordingly." •§7.2 (Allowance 2): "Provide an allowance of \$75,000 for utility back feeds to supply any existing buildings on the site and surrounding areas that will need to be kept on line prior to demolition of existing underground utilities." Temporary services are also required by B.2 §4.24.t and §4.24.u, specs 02 41 00 §3.1.D and 31 10 00 §2.4.C, and drawings 3.2-SE-101 notes 12–14 and 3.2-ST-100 note 13. Please confirm: 1.Which of these are covered by Allowance 2, or are they base bid? 2.Are the §4.24.t electrical services (two 1,500A) and the §4.24.u water connections (three) base bid, given that they serve the new construction? 3.Which existing buildings must stay on line, with which utilities, and for how long? This includes EQM and Parking Garage #1 after Garrigus is demolished. 4.Will back-feed work beyond \$75,000 be handled as a change?	10/2/2026	Please reference question 59 and 102 for some of these details. We expect to utilize the \$75,000 allowance for these conditions and area. This allowance is not for any of the requested temporary electrical, water or other services for the project site. The other temporary conditions noted in this question are base bid and included under the allowance. During the March to May timeframe, the primary building that need to stay online are Ag North and Garrigus. WTJV expects to finalize these details with the selected contractor during preconstruction
70	Exhibit B.2 4.27 requires the 'majority' of concrete and masonry debris to be recycled and re-used on site for temporary roadways and laydown areas, free of metals, with the plan to be finalized during preconstruction. Please state the assumed re-use percentage, whether we are allowed to leave additional material stockpiled on-site, the required processed gradation, and whether on-site crushing is permitted within the project limits. In addition, please confirm: (a) because §4.27 states the recycled material is "for later use by the construction manager," whether this contractor's obligation ends at producing and stockpiling the material, and if so the stockpile location, the maximum stockpile duration, and who loads out and places the material later; and (b) how §4.27 relates to §4.28.a, which separately requires 9" temporary asphalt (3" asphalt over 6" DGA) for all temporary roads and laydown areas, and specifically whether the recycled concrete may be used as the 6" base in place of DGA; The answer splits the tonnage between an on-site crusher spread and the off-site Disposal: C&D and Disposal: Cleanfill buyouts. Without it, bidders will assume materially different splits and the base bids will not be comparable. Exhibit B.2 4.27 pp.7-8	10/2/2026	The intent is to reuse the concrete and masonry debris of suitable size for roadways and laydown areas onsite and for potential base under the indicated asphalt areas. Any stockpiled materials left for the CM for later use after the demolition and abatement contract shall be coordinated during preconstruction. WTJV does not expect this contractor to "come back" after their contract to perform any work related to this temporary material DGA is included and written within the work scope since WTJV is uncertain of the expected quantity of crushed and processed materials available for this need. Re-use material is expected. Please reference answers to questions 54 and 56 for additional information
71	Each Phase-2 report's §2.6 requires that "any porous substrate in contact with PCB containing caulking should be removed," but no report states a removal depth, a lateral extent beyond the joint, or an acceptance criterion for the remaining brick and concrete. Confirm the required removal depth and extent for PCB-impacted porous substrate at the Head House, Greenhouses, Seed House and Garrigus, and state the verification standard (e.g. post-removal substrate sampling to a stated ppm) that will be used to accept the work.	10/2/2026	Refer to the environmental reports issued in addendum 1 for these details. If information is unsatisfactory, state your assumption within your RFP response for consideration. These details can be clarified during preconstruction
72	The Garrigus Phase-2 report commits Chase Environmental to two further inspections that are not in the issued set: "CEG will inspect the Cooling Tower system during the future roof inspection activities" (§1.6, covering insulation fill at 55% chrysotile, pipe insulation at 30% amosite and water-flow-divider material at 60% chrysotile, all quantity "-"), and "CEG will inspect and quantify these areas prior to demolition and report them accordingly to UK" (§1.6 Note, for the USDA basement areas where a hard gray wall-partition material at 40-45% chrysotile shows quantity "UNKNOWN"). Will these two supplemental reports be issued before the bid date, and if not, are the quantities they establish an Owner-directed change or contractor risk?	10/2/2026	No, these reports will not be release prior to the bid date. For this work in question regarding the Garrigus Cooling Tower, please see the allowance added in addendum #3
73	Exhibit B.2 §4.25.d states "This contractor shall assume any like materials as those identified should be considered hazardous." The four issued Phase-2 reports leave at least eight material lines with a quantity of "TBD", "UNKNOWN" or "-" (fire-door insulation at three buildings, Garrigus vent-hood wall brackets, Garrigus black glue dots, three Garrigus cooling-tower materials, the Garrigus USDA wall partition, Head House interior greenhouse window-frame caulk, and Head House pipe/valve gasketing). Confirm whether §4.25.d obliges bidders to carry abatement of these unquantified "like" materials in the base bid, or whether they are to be handled through the §7.1 \$50,000 additional-abatement allowance or as a change.	10/2/2026	For any unknown or TBD materials, the intent will be to utilize the allowance at this time. Trade Contractors shall comment in their response on if they feel this \$50,000 allowance is adequate or not based on their review of bid information. Please note the additional Garrigus Building reporting sections included in addendum 3 Note, for the Garrigus Cooling towers, please reference question 73 and additional allowance added in addendum 3
74	At the Head House and Greenhouses the ACM and PCB tables describe overlapping caulk runs with quantities that do not reconcile: the gray window ledge/sill caulk below the aluminum flashing is 2,300 LF as ACM (GHE-05A, 4% chrysotile) but 500 LF as PCB (PGH-01 at 3,730 ppm, with PGH-02 "Included Above"), and the light tan exhaust vent damper expansion joint caulk appears as 300 LF in BOTH tables (GHE-16A at 5% chrysotile and PGH-09 at 60.7 ppm). Confirm whether the ACM and PCB quantities describe the same physical runs — i.e. a single removal with dual waste characterization — or whether they are additive, and confirm the disposal path required for caulk that is simultaneously ACM and PCB Bulk Product Waste.	10/2/2026	For the purposes of this proposal, include pricing for the worse case. Quantities are additive. Include the worse case disposal path for this material.

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75	At the 09/22 pre-bid WTJV stated that the proposal shall not include a bid bond or a payment and performance bond and that bonding is rolled into the CCIP and Subcontractor Default Insurance (transcript [21:11-21:27]). Please confirm this in writing, and confirm that no bond cost is to be carried in the base proposal - the issued documents still conflict (RFQ/P secs. 3.4 and 6.8; Exhibit B.1 sec. 2.5; Exhibit B.2 secs. 4.11/4.14) and section 00 61 00 (SDI) has not been issued. Please also confirm whether a demolition / abatement trade partner is an Enrolled or an Excluded Party under the CCIP.	10/2/2026	Bond costs are not to be included in the proposal total costs. As the RFQ/P details, please provide a cost for a P&P bond for evaluation and possible future addition to the contract. Regarding CCIP insurance, the demolition and abatement contractor will be listed an excluded subcontractor.
76	What are the contract durations for the ESI-10 package? Supplementary Conditions Article 06.1 states the time for Substantial Completion shall be 'TBD consecutive' days from a future Work Order, with Final Completion 90 days thereafter, while Exhibit B.2 sec. 30 requires the Subcontractor to include all overtime, multi-shift and weekend cost necessary 'to achieve the schedule durations'. Please state the durations, or confirm that they will be established before the proposal is priced.	10/2/2026	Please refer to the project schedule in exhibit 00 31 13.01. Trade partners shall include necessary shift premium and overtime costs to meet the project schedule.
77	Please confirm that the University will remove all laboratory chemicals, compressed-gas cylinders, biological materials and licensed radioactive sources from Ag North, Garrigus, the Seed House and the EQM building, and will provide radiological and biological clearance, before each building is turned over for demolition. If not, please state that the abatement package must price laboratory-pack disposal and radiological and biological clearance, and issue the inventory.	10/2/2026	The intent is for the University to remove laboratory and noted materials and chemicals.
78	At the 09/22 pre-bid WTJV stated the project will be LEED Silver with recycled-content goals the demolition scope should 'meet or exceed' [21:35-21:53], while Exhibit B.2 sec. 3 LEED REQUIREMENTS reads 'INTENTIONALLY OMITTED' and specification 01 74 19 1.2/1.3 requires a minimum 50 percent salvage/recycling rate by weight across at least four streams with LEED Implementation Plan, progress reports and closeout calculations. Please state the diversion target that applies to BP#002.00 and confirm the LEED documentation required from this trade partner.	10/2/2026	Disregard the statement in exhibit B.2 where these details will be completed to align with the specifications and project details. The diversion target shall be for the specifications. WTJV will work with the selected trade partner during preconstruction to final develop final targets.
79	Exhibit B.2 4.23 requires the vibration monitoring at the ten Pavilion A and US Veterans Hospital locations to 'alert if a certain threshold is exceeded', but no threshold is stated anywhere in the issued set. Please state the peak-particle-velocity limit, its frequency basis, and the stop-work trigger at each location. At the 09/22 pre-bid WTJV stated monitoring must be REAL-TIME at multiple locations (not periodically read monitors) with limits set in precon [13:15-14:01]; please confirm the real-time/telemetry and alert requirements in writing.	10/2/2026	The selected trade partner will work with WTJV and the University during preconstruction to review and develop the appropriate targets to monitor and mitigate the noted risks.
80	Drawing 3.2-AD100 keynotes PA.1-PA.3 require removal of the Pavilion A steel canopy, twelve steel-and-masonry canopy columns and a masonry wall at the operating hospital, but the canopy appears on neither the Exhibit B.2 4.24 in-scope list nor any Phase-2 hazardous-materials report, and no existing drawing of it was issued with Addendum 1. Please confirm (a) that PA.1-PA.3 are in BP#002.00, (b) the number of phases and the hospital-operations constraints (entrance closure, hours, protection) the canopy must be removed in, (c) provide available drawings, and (d) whether a hazardous-materials survey of the canopy, columns, and wall exists. Each phase is a separate mobilization with protection and night/off-hours work at an active hospital entrance; WTJV said at the pre-bid it will likely be 2 to 4 phases [11:44-11:56] and may clarify by addendum [12:11], but nothing in writing says so and the element is unsurveyed. DWG 3.2-AD100 keynotes PA.1, PA.2 ('TYPICAL OF 12'), PA.3; Exhibit B.2 4.24 p.3; Exhibits 00 24 13.02-1...-5 (no Pavilion A coverage); Addendum No. 1 item 2 (no Pavilion A set)	10/2/2026	Please see additional details clarified and included in addendum #3. There is no current hazardous material survey for the Canopy. This was recently built, having completed in 2011. Assume no hazardous materials are contained within this structure.
81	Exhibit B.2 4.21.b makes the Seed House, Head House and Greenhouses available to demolish on March 15, 2027, but at the pre-bid WTJV said all buildings are in use until the current academic year ends, 'May, April' of 2027. Please confirm in writing the date each building will be vacated and turned over (including removal of University contents), and whether the 03/15/2027 availability and the 12/21/2026-01/09/2027 winter-break abatement window in Ag North and Garrigus (4.25.b) stand.	10/2/2026	The discussion and details listed in the exhibit B.2 work scope are accurate
82	The existing building drawings issued by Addendum 1 show the tunnels continuing beyond the buildings being demolished: Tunnel 'N' runs from the Seed House basement to the existing Boiler / Heating & Cooling Plant past the K.U. Electric Substation (Seed_House.pdf p.9), a tunnel runs from Garrigus to Existing Ag Lab No. 1 (Garrigus_AGSTH1.pdf UE-1 / S2), and Tunnels 'W', 'E', 'B', 'C' and a Head House/greenhouse utility tunnel are also named. Exhibit B.2 4.25 and SPEC 31 10 00 2.5.B include 'tunnels' without limits. Please identify, for each tunnel, the station or wall where removal stops, who builds the bulkhead / watertight closure at that point, and which tunnels (if any) are to remain in service (e.g. feeding the plant or buildings south of Cooper Drive). In addition, please provide: (a) the design criteria for each permanent bulkhead (structural loading, waterproofing, utility penetrations to remain), and whether the bulkhead is to be designed by the Owner's engineer or by this contractor's engineer; (b) whether any tunnel segment, in particular the deep rock section of Tunnel 'N', may be abandoned in place and filled with flowable fill rather than removed under SPEC 31 10 00 2.5.B; and (c) Section 03 03 00 "Structural Excavation and Backfill," which SPEC 02 41 16 cites for backfill of voids created by removing structure, but which was not issued.	10/2/2026	Tunnel demolition should be included within the limits of the project site as indicated within the project documents. The bulkhead / watertight closure should be designed and constructed by this contractor at all needed locations. Final details shall be coordinated and finalized during the preconstruction work. Please provide details as part of our operational work plan submitted with your proposal response

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83	Temporary weather protection and dust enclosures, locations and duration The documents require temporary enclosures and weather protection but don't say where: •02 41 00 §3.2.C–D: "Provide temporary dustproof partitions between demolition areas and occupied areas" and "temporary weather protection and insulation... Insulation value: R 19." •02 41 16 §3.2.B.3: "Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction." •Supplementary Conditions Art. 32.5: "construct temporary dust partitions at locations and as detailed on drawings." No drawing shows any. Section 01 50 00, which these specs defer to, was not issued. Please confirm: 1.At which buildings and openings is temporary weather protection required? 2.Do the Art. 32 interior enclosures apply to the winter-break abatement in Ag North and Garrigus? If so, where are they located? 3.When does this contractor's responsibility for weather protection end, given that it runs until new construction by others?	10/2/2026	The specification details are include for use in the needed areas. Trade partner shall clarify any needs and planning in their response to the RFP. This includes for the early abatement work inside the AG North building during winter break.
84	How should bidders acknowledge Addendum No. 1 (and any later addenda) on the 00 41 16 Form of Proposal, given the form binds the bidder to the documents “as modified by any addenda listed herein” but provides no field, checkbox, or blank to list which addenda were received?	10/2/2026	A simple acknowledgement within your proposal is fine
85	Exhibit B.2 4.24.f requires five (5) sediment basins/traps "as indicated on drawing 3.2-CB101", but CB101 labels eight (Traps 1, 2, 3, 4A, 4B, 4C, 5A, 5B). Please confirm how many are in BP#002.00, and whether Trap 3 (in the Garrigus basement) is built by this package after demolition.	10/2/2026	Drawings 3.2-CB101 is correct, Exhibit B..2 will be revised to include a total of six (6) sediment traps. NOTE, sediment traps #1 and 5B will be by others.
86	Drawing 3.2-CD101 general note 10 requires the perimeter construction-limits fence to be "UK standard 8 ft high chain link with required lighting." Please define the required lighting: fixture type, spacing, illumination level, operating hours, and power source (hardwired or solar), or issue the UK standard it refers to.	10/2/2026	Lighting is to be normal and expected for this type of project size and scope. The goal is safe illumination for the perimeter of the construction site.
87	Drawing 3.2-CD101 General Note 19 says "See MEP drawings for demolition of electric, steam, chilled water, water, communication, and gas facilities," and Notes 14, 16 and 19 say "Refer also to ESP2 & ESP3.1 utility plans." The ESP-3.2 set has MEP demolition sheets only for high-pressure steam (3.2-ST-100) and chilled water (3.2-ST-101), and the ESP2 and ESP3.1 utility plans were not issued. Please (1) issue the MEP demolition drawings for natural gas and domestic water / fire protection, or confirm that the CD101 series is the full extent of that work; (2) issue the ESP2 and ESP3.1 utility plans; (3) name the gas utility serving the buildings in BP#002.00 and confirm which gas lines are public-utility services and which are UK-owned distribution (the CD101 legend shows gas "from KY 811 marks" and gas lines "not active"); and (4) confirm which water lines are Kentucky American Water services and which are UK-owned ("W UK" / TUD-marked) lines.	10/2/2026	Please see the answer to the question 93 Gas lines serving the campus are owner by Columbia Gas Company All water lines on campus (within the project site) are owned by the University.
88	The issued documents state three different Commercial General Liability requirements and a separate umbrella requirement for this trade package: (1) 00 52 34 Exhibit D, ≥\$1,000,000 subcontract tier: \$5,000,000 each occurrence / \$5,000,000 aggregate; (2) 00 24 13.02 Exhibit B.2 §4.22: not less than \$25,000,000 general/excess per occurrence and \$50,000,000 aggregate; (3) 00 73 00 Supplementary Conditions Art. 42.2.1.1: \$100,000,000 each occurrence with no crane exclusion, and Art. 42.2.3: \$100,000,000 umbrella in excess of primary. Agreement Art. 13.3 provides that the higher standard prevails where Contract Documents conflict. Please state the GL and umbrella/excess limits a demolition/abatement trade partner must carry under BP#002.00 (a) if Enrolled in the CCIP, for any off-site or excluded exposures, and (b) if determined an Excluded Party. Please also confirm whether combined primary plus umbrella/excess limits may be used to meet the stated GL figures.	10/2/2026	The insurance requirements needed are clarified in exhibit B.2 item #22. This is directly related to the demolition and abatement work under this work scope. The other indicated insurance requirements are customary for non-demolition and abatement work for this project. Regarding CCIP question, please refer to other answers contained in this document on this same topic, i.e. answers to questions 4, 76, 89, and 101
89	Please clarify the following insurance requirements for BP#002.00, which differ between 00 52 34 Exhibit D and 00 73 00 Supplementary Conditions Art. 42: (1) Employers' Liability: Exhibit D requires \$2,000,000; SC Art. 42.1 requires \$500,000/\$500,000/\$500,000. Which governs? (2) Automobile Liability: Exhibit D requires \$2,000,000; SC Art. 42.2.2 requires \$5,000,000 CSL. Which governs? For both: may umbrella/excess limits be used to meet the stated limits? (3) Professional Liability (\$5,000,000, Exhibit D, "if scope includes design"): spec 02 41 16 requires the trade partner to engage an independent Shoring Engineer. Is this requirement met by the engaged engineer's own professional liability policy, or must the trade partner carry it directly? (4) Asbestos Liability (\$5,000,000 per occurrence, Exhibit D) and Pollution Liability (\$5,000,000, Exhibit D): may these be met by the licensed abatement sub-subcontractor's policies, or must the trade partner carry them at these limits? (5) Additional Insured: Exhibit D names ISO CG 20 10 10 01 and CG 20 37 10 01. Will equivalent blanket additional-insured endorsements on non-ISO carrier forms be accepted?	10/2/2026	Regarding questions 1 and 2. The Special Conditions articles govern. Questions 3, the engaged engineer's insurance can met this requirement Question 4, these can be met by the licensed abatement 2nd tier contractor Question 5, no, provide required forms. Clarify any details in your submitted proposal. Make sure to include needed insurance requirements as listed in exhibit B.2 work scope item 22

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90	Exhibit B.2 §4.24.t requires this contractor to provide two (2) temporary 1,500A, 480V electrical services for use by the new construction, reusing the existing services removed from the buildings being demolished, installed in PVC conduit in concrete ductbanks at locations to be coordinated with the Construction Manager. No location, length or one-line diagram appears in the issued drawings. Please provide: (1) the location of each service and the source point it is fed from, or the ductbank length bidders should assume (the §8.3.c unit price suggests a base length exists); (2) whether reuse of the existing gear is mandatory, or whether new equipment may be furnished where existing gear cannot be relocated, re-tested and accepted by the AHJ and the serving utility; please also identify the existing switchgear intended for reuse; (3) the scope boundary: whether this contractor furnishes the utility transformers, pads, primary-side work, metering and utility fees, or only the secondary service from the utility point of delivery; (4) the date each service must be energized, given the source buildings are not available until 03/15/2027 and 05/01/2027 (Exhibit B.2 §4.21); (5) who maintains the services, pays for energy, and removes them, and when this contractor's responsibility ends; (6) whether the §7.2 \$75,000 utility back-feed allowance applies to this work.	10/2/2026	The locations for these services will be located on the project site generally one location at the West and one location to the east. Utilizing existing gear is not mandatory. We would expect this to be a turn-key installation including all items noted. We would like this service to be active during the summer of 2027 and the expectation is for these services to remain after the demolition and abatement contract is completed. No allowance applies to this work. These are the kind of details WTJV expects to finalize in preconstruction with the selected contractor.
91	Exhibit B.2 §4.24.u requires this contractor to provide three (3) new water connections and fire hydrant connections, with exterior backflow preventers and metering, for temporary site water during the new construction. Please provide: (1) the location of each connection; (2) the required size and flow; (3) the tap point and the serving provider at each, Kentucky American Water or UK-owned distribution; (4) whether tap and meter fees and water usage are by this contractor or by the Owner/CM; (5) the date each must be in service; (6) who maintains them and removes them, and when this contractor's responsibility ends; (7) the pipe material, pressure class, bedding, pressure-testing and disinfection requirements, freeze protection, and the required backflow-preventer, meter and hydrant types. No Division 22 or 33 water piping section was issued, and the only size or depth stated is the §8.3.b unit-price basis (2" diameter, 36" below grade).	10/2/2026	The locations for these services will be located on the project site generally one location at the West and one location to the east. WTJV would expect the trade partner to install 2" diameter service normal and customary for temporary construction water service. These would be off of the UK owned distribution. Maintenance is required during the duration of the demolition and abatement contract and then will be handed off to a future trade partner. Include materials, equipment and installation specification per the local AHJ requirements. These are the kind of details WTJV expects to finalize in preconstruction with the selected contractor.
92	Section 01 50 00 "Temporary Facilities and Controls" is referenced throughout the ESP-3.2 specifications, including 02 41 16 (pp.26, 29 and 52, where it is named as the governing section for temporary utilities, enclosures, dust control, heating and cooling) and 01 74 19 (p.6), but it is not included in the issued specification book or listed in its table of contents. Drawing 3.2-SE-101 coded notes 6 and 7 likewise require backfill "in accordance with Division 33 specifications," and no Division 33 section was issued. Please issue Section 01 50 00 and the applicable Division 33 sections, or confirm that they do not apply to BP#002.00. They are needed to define the temporary electrical services required by Exhibit B.2 §4.24.t, the temporary water connections required by §4.24.u, utility trench and structure backfill, and the temporary facilities, enclosures and controls the demolition specifications defer to them.	10/2/2026	ESP 3.2 specifications and division 33 specifications are not available at this time. Please include compaction, backfilling, and other earthwork activities and temporary utility specifications normal and customary for work of this size and scale. WTJV will work with the selected bidder during preconstruction to finalize these details.
93	Drawing 3.2-ST-100 coded notes 3, 10, 11 and 14 direct this contractor to remove valves and weld-cap high-pressure steam (HPS) and pumped-condensate return (PDR) piping as close as possible to the main, repair insulation, and patch tunnel and vault walls and waterproofing. Note 13 requires the steam lines serving the buildings south of Cooper Drive to remain active until the new south feed is in place. The ESP-3.2 specifications contain no steam piping section. Please provide: (1) the governing code and requirements for the welded caps: cap material and pressure rating, weld procedure and welder qualification, and required NDE or pressure testing; (2) resolution of the conflict between spec 23 05 05 §3.3.B, which requires existing isolation valves at branch take-offs to be retained for future use, and ST-100 notes 3, 10 and 11, which direct removal of the valve and capping at the main; (3) who isolates, drains and re-energizes each main at the termination points (this contractor or UK Physical Plant), the available outage windows, and whether any termination must be made on a live main; (4) the insulation and waterproofing specifications for the repairs at each termination; (5) whether the existing pipe insulation at the termination points, in the tunnels and vaults, has been surveyed for asbestos, and if not, whether bidders should presume it is ACM; (6) the "new work plan" referenced in coded note 2, which was not issued.	10/2/2026	The insulation located in the existing tunnels and buildings referenced by these notes are NOT asbestos containing. The specifications requested in this specifications are not available. The steam system in question is a 500 PSIG rated system. All fittings and pipe should be rated as such. Trade partners will be expected to participate in outage meetings and planning with WTJV and the University. The steam will be available for tie in after June 1 2027 during the summer months. The bidders shall assume a Carlisle sheet water proofing membrane with drainage board as a basis specification for replacement. New work plan is not available. WTJV will work with the selected bidder during preconstruction to finalize these details.
94	Drawing 3.2-ST-101 coded notes 1, 6, 7 and 9 direct this contractor to cap 16" and 12" chilled water supply and return (CWS/CWR) piping as close as possible to the main in the tunnels and vault, to cap the CWS/CWR connection underground and "pour an anchor to hold cap in place," to repair insulation, and to patch tunnel and vault walls and waterproofing. ST-100 note 13 requires the chilled water lines serving the buildings south of Cooper Drive to remain active until the new south feed is in place. The ESP-3.2 specifications contain no chilled water piping section. Please provide: (1) the existing pipe material at each termination, and the required cap type (welded or mechanical/grooved), cap material, pressure rating and required pressure testing; (2) the design of the concrete anchor required by note 6: size, concrete strength, reinforcing, and whether it must be engineered by this contractor; (3) who isolates and drains each segment at the termination points (this contractor or UK Physical Plant / Cooling Plant #1), the available outage windows, and whether any cap must be installed on a pressurized main; (4) the required disposal method for drained system water, including whether it contains treatment chemicals or glycol, and whether discharge to sanitary sewer is permitted; (5) the abandonment requirement for piping under the road (note 5): cap only, or fill with grout or flowable fill; (6) the insulation (including vapor barrier) and waterproofing specifications for the repairs at each termination; (7) whether the existing chilled water pipe insulation at the termination points has been surveyed for asbestos, and if not, whether bidders should presume it is ACM; (8) the "new work plan" referenced in notes 7 and 10, which was not issued.	10/2/2026	The insulation located in the existing tunnels and buildings referenced by these notes are NOT asbestos containing. This is a hospital chilled water system, high grade specifications. The CHW piping inside the tunnel is schedule 40 steel material. Trade partners will be expected to participate in outage meetings and planning with WTJV and the University The trade partners will need to provide their plan for this work which will include methods of draining and treatment for the new work, etc. WTJV will work with the selected bidder during preconstruction to finalize these details.

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95	The existing utility drawings show 12kV, 15kV UK and 69kV+15kV electric ductbanks within and adjacent to the project limits, next to the KU Electric Substation, and drawing 3.2-SE-101 requires removal of existing ductbanks and manholes. Spec 26 05 05 prohibits work on energized equipment or circuits. Please confirm (1) which medium-voltage circuits within the BP#002.00 limits are energized, and which are owned by UK and which by Kentucky Utilities; (2) who performs switching, isolation, lockout and grounding of medium-voltage circuits before this contractor's work (UK, KU, or this contractor through a qualified high-voltage subcontractor); (3) the outage windows available for each circuit; and (4) which medium-voltage ductbanks, if any, must remain energized and be protected in place.	10/2/2026	The circuits are energized and a detailed outage work plan will need to be submitted. The manholes are owned by the University. UK will work in concert with the selected contractor to isolate the energy. WTJV will work with the selected bidder during preconstruction to finalize these details, including the outage windows, etc.
96	Drawing 3.2-SE-101 coded notes 8 and 9 require this contractor to disconnect the existing pad-mounted transformer and pad-mounted switch, turn them over to the Owner complete, and deliver them to a campus location designated by the Owner. Please confirm (1) whether the transformer and switch have been tested for PCBs and, if so, provide the results, or state whether bidders should presume PCB-containing equipment under spec 26 05 05 §3.3.A; (2) whether the Owner or this contractor drains, tests and handles any dielectric fluid before transport; (3) the delivery location or maximum delivery distance; and (4) whether rigging, transport and setting at the delivery location are by this contractor.	10/2/2026	Assume these items have no PCBs. The owner will not drain or handle the dielectric before transport. The rigging distance will be within 25 miles of the project site. This ESI-010 trade contractor provides all rigging, lifting, and transport for this work (turn key).
97	Drawing 3.2-SE-101 coded note 3 requires the existing concrete-encased electrical ductbank to be removed only "after all of the new electric services have been placed in service and the existing conductors have been removed," and notes 17–19 tie other ductbank limits to work by previous or other packages. Please confirm (1) the anticipated date the new electric services will be in service, (2) who removes the existing conductors, (3) whether removal of the deferred ductbank is expected within this contractor's contract duration or as a separate return mobilization, and (4) if a separate mobilization is required, whether it should be priced as a separate line item or alternate.	10/2/2026	For the purposes of this proposal, include removal of this ductbank will be available after September 1 2027. This timing may occur earlier. The conductors will be removed from the ductbank. Include mobilizations as necessary to align with your work plan. WTJV will work with the selected bidder during preconstruction to finalize these details and timing.
98	General Conditions 00 72 00 Art. 9.1 and Art. 11.6 require the trade partner to include sales, consumer, use and similar taxes on materials, equipment and supplies incorporated into the Work "unless otherwise specified in the bid documents," and Art. 57 provides for an Owner direct materials purchase program, using the Owner's tax-exempt status, to be agreed in writing and incorporated by Change Order no later than completion of Design Development. Exhibit B.2 and the Supplementary Conditions are silent on taxes. Please confirm (1) that proposals for BP#002.00 are to include all applicable Kentucky sales and use taxes, and (2) whether the Owner intends to apply the Art. 57 direct purchase program to this package, and if so, which materials or equipment categories would be included and how the resulting tax savings will be credited.	10/2/2026	Submitted proposals shall include all taxes. The owner does not intend to utilize direct purchase for any items in this work scope.
99	Specification 31 20 00 Earth Moving §1.02.C states that the Owner shall provide and pay for testing and inspection during earthwork operations as part of Special Inspections, with the Contractor facilitating and cooperating (§3.10.A and D), and §3.10.F places only the cost of re-testing failed work at the Contractor's expense. However, Exhibit B.2 §4.3 lists "testing" among the construction work the Subcontractor shall provide, and Exhibit B.1 item 19 (Testing and Inspections) states that initial testing-laboratory costs are by others only "if so noted in documents." Please confirm that all compaction and fill testing for BP#002.00 (fill-material suitability and ASTM D698 Proctors per §3.10.B, bearing tests per §3.10.C, and per-lift density tests at 1 per 500 SF with a minimum of 2 per lift per §3.10.D) for backfill of foundation voids, utility trenches and subgrade is furnished and paid for by the Owner's Special Inspector, and that this package carries only coordination, access, sampling assistance and the cost of re-tests on failed work. Please also confirm whether the same applies to any testing of the on-site recycled concrete and masonry required by Exhibit B.2 §4.27.	10/2/2026	Reference question 60 Special inspection testing will be by the design team. The "testing" referred to in Exhibit B.2 §4.3 is normal and expected testing to complete your work scope. We would expect that this trade partner participate in the data gathering and calculations of any recycled content for this work scope. Coordinate with construction manager and the design team.
100	Exhibit B.2 Scope Clarifications item 22; draft CCIP Manual Section 3 Excluded Parties, printed page 9; Subcontract Exhibit D - Please confirm CCIP enrollment or exclusion separately for the demolition contractor, abatement subcontractor, environmental consultant, and haulers. Clarify which entities must individually carry the \$25 million per-occurrence and \$50 million aggregate general/excess limits, and identify separate pollution and asbestos liability requirements. Please provide the final CCIP manual, applicable deductibles, and instructions for including or crediting insurance costs in the proposal.	10/6/2026	Please reference answers to questions 4 and 64. Final CCIP manual will be issued to the selected contractor prior to finalization of the GMP. Use current manual as basis
101	Exhibit B.2 Scope Clarifications items 21(e), 24(l) and 24(m); Allowances item 2 - Please identify the temporary utility backfeeds and reroutes included in the base bid versus the \$75,000 allowance. Provide the affected buildings, utility types, sizes and capacities, routes, connection points, and required service duration. Confirm whether design, permits, testing, commissioning, and licensed trade work are payable from the allowance and how costs exceeding the allowance and resulting schedule impacts will be addressed.	10/6/2026	The \$75K allowance is for the direct work to temporary backfeed existing building during the ~ February to May 1st 2027 timeframe. We would expect the trade partner to include the necessary overhead and staff time for these efforts. We do not anticipate exceeding the noted allowances. These are the kind of details WTJV expects to finalize in preconstruction with the selected contractor.
102	Exhibit B.2 Scope Clarifications items 18, 24(l) and 31; listed utility demolition drawings - Please provide current utility records and identify lines to remain live, be abandoned, or be removed, including services passing through the Seed House and tunnels. Clarify the extent of vacuum excavation, including whether all excavation areas must be pothole-verified or only work near identified utilities. Confirm shutdown windows, notice periods, owner isolation responsibilities, and the limits of removal beyond the stated five feet outside each building.	10/6/2026	Affected utilities are noted on the included drawings. Trade partner to submit these details as part of their demolition plan. Outside of the early backfeed necessary between March and May, all major utilities supplying the facilities scheduled to be demoed will be shut down. Selected trade partner is expected to work with the CM and Owner to finalize this planning during preconstruction. Extensive vacuum excavation is expected to identify existing utilities for shut off and make safe work and any re-routing to support the demolition work.

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103	Environmental Exhibits 00 24 13.02-1 through 00 24 13.02-5; Garrigus report Sections 2.4 through 2.6; Exhibit B.2 item 25 - Please provide a project-specific PCB abatement specification identifying removal limits for caulk and adjacent porous substrates, including concrete and masonry. Define substrate sampling, clearance criteria, required waste characterization, approved disposal requirements, and any owner-obtained approvals. Confirm which substrate removal is known base scope and which additional quantities qualify for the abatement allowance. Identify when remaining concrete/masonry may be released for recycling.	10/6/2026	Please refer to the answers to questions 65, 67, 72 and 75 Please see additional reporting sections for the Garrigus Building contained in addendum 3
104	Exhibit B.2 Scope Clarifications item 25(a), 25(c) and 25(d); Allowances item 1 - Please establish the hazardous-material quantities and assumptions bidders are to use for the base estimate, including tunnels and inaccessible areas. Clarify how unsurveyed materials, concealed materials, and quantities exceeding the reports will be measured and paid under the \$50,000 allowance or a change order. Identify the authorization procedure and treatment of testing, disposal, standby, remobilization, and schedule impacts if additional materials are discovered.	10/6/2026	WTJV will work with the selected contractor to identify and price any "additional abatement" as found on the project site. WTJV would expect fair and reasonable pricing for the conditions found. The approval process for any exceed amount will be handled per the included conditions contained in RFP/Q.
105	Exhibit B.2 Scope Clarifications items 25(f) and 25(i) - Please define the acceptance criteria for the required clean letter and the phrase zero hazardous materials remain. Identify required inspections, sampling methods, clearance standards, report format, and receiving parties. Confirm whether clearance is issued by building or area and whether the contractor-retained consultant may perform all required monitoring and clearance functions. Identify any separate owner-retained verification and who pays for it.	10/6/2026	Include acceptance criteria normal and expected for a project of this size and magnitude. Comply with all AHJ, State and local regulations as required for this work scope. This trade partner shall provide all costs. If the owner wishes to provide additional verification, they would handle these costs.
106	Exhibit B.2 Scope Clarifications item 25(c); Environmental Exhibits 00 24 13.02-0 through 00 24 13.02-5 - Item 25(c) references reports prepared by S&ME, while the supplied building inspection reports identify Chase Environmental Group. Please confirm the complete controlling report set and issue any additional S&ME reports, revisions, or supplemental surveys. Identify which report governs where quantities, material classifications, or recommendations conflict.	10/6/2026	Please refer to the answer to questions 68. S&ME written in error for this scope item.
107	Exhibit B.2 Scope Clarifications item 21; Outline Project Schedule 00 31 13.01 - The scope narrative releases the Seed House/Head House/Greenhouses on March 15, 2027, while the outline schedule starts this work March 1, 2027. Please issue a coordinated schedule confirming access and release dates, abatement and demolition completion milestones, required Ag North/Garrigus concurrency, and turnover requirements for each building. Confirm the controlling durations and the procedure for price/time adjustment if releases or required sequencing change.	10/6/2026	Reference Project Schedule in exhibit 00 31 13.01. WTJV expects to finalize details with the selected contractor during preconstruction with a series of pull plan secessions to finalize work within the overall noted durations.
108	Exhibit B.2 Scope Clarifications item 25(b) - Please confirm whether the December 21, 2026 through January 9, 2027 abatement window is mandatory base scope or an optional acceleration opportunity. Identify areas available, permitted nightly hours, holiday restrictions, occupancy conditions, daily clearance and reopening requirements, and floor sealing/restoration requirements. Confirm whether work not completed during this window may be performed after the buildings are released without penalty.	10/6/2026	This timing window is optional. Trade partners shall comment in their submitted proposal as part of their operational work plan. Abatement work that could be available is abatement within the vertical chase, 9"x9" tile, and other similar work that cause limited disturbance to the building occupants. WTJV expects this work to occur at night, "3rd shift work hours". WTJV expects to work with the selected contractor during preconstruction to finalize these details.
109	Exhibit B.2 Scope Clarifications items 6, 13, 20, 30 and 32; RFQ/P Section 5.3; Special Conditions Articles 48 and 49 - Please provide permitted hours for structural demolition, hydraulic breaking, crushing, hauling, and utility outages, including weekends and nights. Identify hospital noise restrictions, emergency access requirements, and anticipated blackout periods. Confirm the procedure for documenting and compensating owner/CM-directed interruptions, restricted access, or revised shifts that differ from the bidding schedule and operating windows.	10/6/2026	Please reference answers to question 11. Note, this work is adjacent to a major hospital area and located on a major University campus. All work plans and cost details should account for these important conditions.
110	Special Conditions Articles 6 and 7; Standard Subcontract paragraphs 4.4 and 4.5. - Please identify package-specific substantial and final completion dates and confirm whether the stated \$10,500/day and \$6,200/day liquidated damages apply to this package, individual building milestones, or the overall project. Clarify allocation where delays involve other contractors or owner restrictions. Reconcile Article 7.3 identifying liquidated damages as the sole delay remedy with subcontract paragraph 4.5 allowing additional actual damages.	10/6/2026	The liquidated damages are applicable to the overall project completion date. With that said, individual project milestones for this package are critical to the successful start to excavation and foundation work. Trade partners are expected to meet the indicated durations or comment otherwise in your submitted proposal. WTJV will work with the selected contractor during preconstruction to finalize schedule details.
111	Exhibit B.2 Scope Clarifications item 23 - Please establish and issue the allowable vibration monitoring levels for each of the ten monitoring locations before bidding. Provide numerical acceptance limits, warning/alert thresholds, and mandatory stop-work thresholds, including measurement units, applicable frequency ranges, averaging or measurement periods, and any hospital equipment-specific criteria. Identify who establishes and approves these levels. Please also provide monitoring locations, baseline duration, monitoring hours, reporting intervals, and alert recipients. Define the response to each threshold, including who may suspend and authorize restart of work. Confirm monitoring end dates and responsibility for investigation, additional monitoring, and downtime when an exceedance is unrelated to this contractor or occurs below the specified construction limits.	10/6/2026	Please reference answers to questions 11, 36, 37,and 80
112	Exhibit B.2 Scope Clarifications items 24(a), 24(p) and 24(q) - Please define the five continuous monitoring locations, pre-demolition baseline duration, and the averaging period for the 10 mg/m3 criterion. Clarify the relationship between continuous particulate monitoring, NIOSH Method 0500 samples, and separate lead, asbestos, and silica testing. Provide analytical methods, sample frequency, laboratory turnaround, action levels, reporting requirements, and required qualifications for the monitoring provider.	10/6/2026	The ESI-010 trade partner shall include suggested details and planning as part of their operational work plan submitted in their response. These are the kind of details WTJV expects to finalize in preconstruction with the selected contractor.
113	Exhibit B.2 Scope Clarifications items 24(r) and 24(s) - Please identify all Pavilion A, VA, and other building intakes requiring protection, including access arrangements and approved attachment/filter details. Define airflow acceptance and verification requirements, inspection/replacement frequency, and responsibility for hospital HVAC adjustments. Clarify whether a dedicated dust-control laborer is required for each concurrent operation or for the package overall, and state when intake protection may be removed.	10/6/2026	Please reference answer to question 40. WTJV would expect regular monitoring of any installed protection and controls. Submit details as part of your operation plan included with your submission to this RFP/Q. Intake protection shall be removed at the completion of the demolition work scope.

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114	Exhibit B.2 Scope Clarifications item 24(b); Specification 31 20 00 paragraph 3.04; Special Conditions Article 5 - Please provide available structural/foundation records and the current geotechnical report. Identify deep-pier types, depths, and removal limits, including any permitted abandonment below future excavation. Confirm the bidding basis and payment procedure for unrecorded foundations, rock excavation, unsuitable soils, tanks, or concealed structures. Clarify whether all such excavation is included as unclassified base work despite the absence of confirmed subsurface quantities.	10/6/2026	Please reference answer to question 66
115	Exhibit B.2 Scope Clarifications item 24(c); Specification 31 20 00 paragraphs 3.07 and 3.10 - Please provide required final elevations and grading limits for each demolished building, basement, tunnel, and utility trench. Identify approved fill materials, future structural/pavement zones, and whether recycled demolition aggregate is acceptable as backfill. Clarify testing-agency engagement and payment, inspection frequency, acceptance criteria, and responsibility for settlement repairs or fill disturbance after turnover to subsequent contractors.	10/6/2026	Please reference answer to question 60. Testing agency for special inspections is by the design team. These are the kind of details WTJV expects to finalize in preconstruction with the selected contractor.
116	Exhibit B.2 Scope Clarifications item 27; Specifications 01 74 19 and 02 41 00 - Please confirm whether onsite crushing is permitted and identify allowed locations and operating hours. Provide aggregate gradation, metal removal, contamination testing, acceptance criteria, required quantities, and stockpile limits. Clarify whether this contractor must process, transport, place, and compact recycled material or only make it available to the CM. Resolve the onsite reuse requirement with specification language requiring removal of demolition debris from the site.	10/6/2026	Please reference answer to question 39. Onsite crushing will be considered. Trade partner shall provide details in their operational plan submitted in their response to this RFP/Q
117	Exhibit B.2 Scope Clarifications items 24(t) and 24(u) - Please provide layouts and design criteria for the two 1,500A/480V services and the three new water/hydrant connections required by item 24(u). Specifically, establish the required nominal diameter for each of the three water service connections, associated service piping, and backflow preventer assemblies. Provide required flow capacity and available/required pressure, identify hydrant connection sizes, and confirm meter sizes and backflow preventer types. Identify reusable existing equipment, connection points, ductbank/conduit sizes, permits, testing, and utility-company charges. Confirm whether these installations are separate base scope from the backfeed allowance, and identify ownership, maintenance, consumption costs, and eventual removal responsibility.	10/6/2026	Please reference answers to questions 91 and 92
118	Exhibit B.2 Scope Clarifications items 24(f) and 24(j); Specifications 31 20 00 and 31 20 01; Drawing 3.2-CB101 - Please confirm the limits, dimensions, and installation sequence of the five sediment basins/traps and ADS connections between traps 4B, 4C, and 5A. Define additional temporary controls required by phasing. Identify the permittee/co-permittee responsibilities, inspection and maintenance period, and formal transfer date to subsequent contractors. Confirm responsibility for repairs or sediment removal caused by other contractors after demolition turnover.	10/6/2026	Please reference drawings for limits and dimensions. Trade partner shall submit any necessary details in their response to this RFP/Q. These are the kind of details WTJV expects to finalize in preconstruction with the selected contractor. Any maintenance after completion of this contract will be by others.
119	Exhibit B.2 Scope Clarifications items 24(d), 24(e) and 28; Site Logistics Exhibit 00 31 13.02 - Please provide dimensioned limits and quantities for asphalt/gravel roads, laydown areas, ramps, curb cuts, and construction entrances, including the three paving mobilizations. Confirm whether processed demolition aggregate may replace any specified DGA. Clarify the location and nature of the 11-foot-2-inch clearance shown on the logistics plan and identify approved haul routes, gate widths, truck queuing areas, and traffic-control responsibilities.	10/6/2026	Please reference answers to questions 54 and 56. Limits are shown on Exhibit 00 31 13.02. Processed demolition aggregate can be used if suitable size and dimensions. WTJV expects to finalize in preconstruction with the selected contractor. The 11'-2" clearance references the needed small canopy demolition on the east side of the Ag North building to support the phase 1 work. Include this small canopy demo in phase 1.
120	Exhibit B.2 Scope Clarifications items 29(b), 34 and 35 - Please confirm whether the demolition subcontractor must include the following items in our base contract: (a) purchasing and providing the additional 1,000 linear feet of water-fillable construction barriers with fencing panels and dust fabric, including the CM Walsh-Turner JV logo painted on both sides of each barrier; (b) purchasing and providing the two new Polaris Ranger XP 1000 Northstar, six-seat, cab, four-wheel-drive vehicles for the Construction Manager; and (c) providing the three restroom trailers specified in item 35. For the restroom trailers, confirm purchase versus rental and responsibility for electrical, water and sewer hookups, holding tanks, heat tracing, pumping, cleaning, restocking, and three daily inspections. For all three items, identify ownership, required delivery dates, maintenance and operating responsibilities, service end dates, and removal or turnover requirements. Confirm whether service is limited to our demolition contract or extends into subsequent hospital construction, and how any extension will be compensated.	10/6/2026	Yes, please provide all the items as indicated in the work scope. Incomplete proposal and excluded details will be considered during WTJV review of the submitted proposals. All items indicated are purchase and will remain for use during the Chandler Hospital Expansion project. Restroom trailers will be maintained by others after this contract. Include delivery of these trailers at the start of this contract. The expectation is for these units to be places onsite and tied into the current sanitary and electrical systems. Include necessary temporary utilities. WTJV expects to finalize in preconstruction with the selected contractor.
121	Exhibit B.1 payment and labor provisions; Exhibit B.2 items 11, 14 and 19; RFQ/P Section 3.4; Proposal Form 00 41 16 - Please resolve whether payment/performance bond cost belongs in the base bid or is submitted separately as the SDI alternative, and confirm SDI-related bidder charges. Provide the applicable University wage schedules, classifications, fringe and overtime requirements, certified-payroll obligations, and mandatory labor agreements, if any. Confirm whether the trade locals shown on the labor-rate form establish mandatory staffing or are form examples.	10/6/2026	Please reference answers to questions 5,7, and 76. There are no wage schedules for this project

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122	RFQ/P Sections 4.6 and 6.1 through 6.7; Exhibit B.1 firm pricing provision; Exhibit B.2 items 1 and 5 and LEED Requirements; Specifications 01 74 19 and 01 81 14 - Please confirm whether the October proposal is a preliminary construction estimate or binding GMP, when the GMP becomes fixed, and how later design/scope development is reconciled. Resolve the separate escalation recommendation requested by the RFQ/P with escalation-included firm-price language. Confirm how accepted bidder clarifications become contract documents and whether LEED obligations apply despite the intentionally omitted Exhibit B.2 LEED paragraph; distinguish these from required waste-management reporting.	10/6/2026	Please reference answer to question 79. LEED details are required per the specifications. The pricing is an iGMP as discussed in the RFP/Q. WTJV expects to work with the selected contractor during preconstruction to finalize the costs for this work and any work scope details and clarifications for submission under our WTJV GMP 1 expected in Q1 2027. Any early work ahead of this GMP will be contracted directly with the selected contractor as determined during preconstruction. The expectation is that the iGMP submitted is a maximum amount for the team to work from for the work associated with this package.
123	Exhibit B.2 Scope Clarifications item 26(a) - Please identify and mark the twenty trees designated for salvage and provide the maximum trunk diameter, including diameter at the intended cut location, and required salvaged trunk lengths. Provide tree species and an inventory of anticipated trunk dimensions so the demolition subcontractor can determine appropriate cutting, lifting, loading, transportation, and unloading equipment. Confirm whether salvage is limited to trunks with major limbs removed, and identify required protection, staging, and acceptance criteria. Provide the designated delivery location within the specified 25-mile radius, access and unloading conditions, and required delivery dates. Confirm responsibility for stump/root removal and disposition of limbs and other material not designated for salvage.	10/6/2026	Please reference answer to question 47. Trees will be on the project site. The delivery location will be as specified and the timing will be during the duration indicated on the project schedule. WTJV expects to finalize these details during preconstruction with the selected contractor.
124	Exhibit B.2 – Item 24.B - Regarding the removal of foundations, including any deep foundations or piers, if the foundations are embedded into bedrock, are we required to extract the foundations from the rock and subsequently backfill the resulting void?	10/6/2026	Yes
125	Exhibit B.2 – Item 24.U - Who will be responsible for the cost and usage of the water required from the three new fire hydrants that will be installed as part of this project?	10/6/2026	Consumption costs will be by the others. Please provide typical construction metering installed on fire hydrants prior to usage.
126	Exhibit B.2 – Item 25.D - We understand that all materials similar to those identified in the hazardous materials reports are to be considered hazardous. For comparable bid purposes, are there additional quantities, beyond those specifically identified in the reports, that are to be included in our bid? If so, please provide the additional quantities to be carried in the bid.	10/6/2026	Include the quantities as indicated in the reports. Please provide comment on any inconsistencies within your submitted proposal.
127	Exhibit B.2 – Item 27 - Is there a specified size or material specification to which all concrete and other clean materials are to be crushed for reuse on site?	10/6/2026	Not at this time. We expect the crushed materials to be used for temporary roadways, rip/rap SWPPP controls, and other like uses.
128	Exhibit B.2 – Item 29 - Is there a specific specification for the temporary construction fencing to be installed around the perimeter of the site?	10/6/2026	Reference question 87. Specification is to install 8' tall galvanized, chain link fencing, with driven post at all locations. Install and maintain during your work duration blue dust fabric. Proper utility identification and vacuum excavation verification needed at any post installation near known utility conditions. Include lighting atop fencing required to properly illuminate perimeter for safe travel.
129	Exhibit B.2 – Item 29 - Is the contractor responsible for purchasing the temporary fencing and turning it over to Walsh/Turner at the completion of the project, or is the fencing to be rented and subsequently removed by the demolition contractor at the end of the project? And to what timeframe? End of demolition, end of the overall hospital construction project?	10/6/2026	All fencing noted and discussed (including water barriers with fencing) are purchased and left use during the Chandler Expansion work. Maintain fencing for the duration of your work scope period.
130	Exhibit B.2 – Item 29 - If the fencing is to be purchased, who will be responsible for its removal at the completion of the project?	10/6/2026	Please reference answer to question 130
131	Exhibit B.2 – Item 29 - Is windscreen required on the temporary fencing? If so, what color is to be provided? Should UK Blue be used?	10/6/2026	Please reference answers to questions 62 and 129
132	Exhibit B.2 – Item 29 - What size gates are required for the temporary fencing? Are the gates to be sliding gates or swing gates?	10/6/2026	All swing gates are 12' in width and sliding gates are 24' in width. Of the eight (8) total gates, include (4) sliding gates and (4) swing gates. Include all gates posts at 6" minimum diameter and embedded in concrete. For the sliding gates, include automatic operators, key pads and electric and gate controls for these locations. Coordinate exact details & timing with WTJV.
133	Exhibit B.2 – Item 29 - Additionally, is the additional 1,000 LF of water-filled barricades intended to fulfill the internal fencing requirements shown on the Demolition Logistics Plan, or is the 1,000 LF intended to be in addition to the barricades shown on the Logistics Plan?	10/6/2026	As written in B.2 scope item 29b, this quantity is additional
134	Exhibit B.2 – Item 34 - At the completion of the project, will Walsh/Turner retain ownership of the Polaris XP vehicles, or will the demolition contractor retain ownership?	10/6/2026	The vehicles will remain with the project for use during the construction
135	Exhibit B.2 – Item 35 - Are the three (3) trailer-mounted restrooms to be purchased for this project, or is the contractor responsible for renting the restroom trailers?	10/6/2026	Please reference answers to questions 57 and 121
136	Exhibit B.2 – Item 35 - If the restroom trailers are to be rented, what duration of rental should the contractor carry in its bid?	10/6/2026	Please reference answers to questions 57 and 121
137	Exhibit B.2 – Item 35 - For what duration will the contractor be responsible for the daily inspection, weekly cleaning, and routine stocking of the restroom trailers? Will this responsibility end upon completion of the demolition scope, or will the contractor be required to maintain the restrooms for the entire duration of the hospital project?	10/6/2026	Yes and please Reference answers to questions 57 and 121
138	Exhibit B.2 – Specific Exclusions – Item 1.B - Under the Specific Exclusions, it states that the demolition and abatement of Greenhouse 7 are to be excluded. However, it is our understanding that Greenhouse 7 is not included as part of the CUP package. Will the CUP package be responsible for the demolition and abatement of Greenhouse 7, or will Greenhouse 7 ultimately become part of this contract?	10/6/2026	Greenhouse 7 is part of the UK CUP project and not part of this work scope

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139	CCIP Project - Will the demolition and abatement package be included as part of the CCIP project, or will this scope be excluded from the CCIP?	10/6/2026	Please reference answers to questions 4, 76, 89, and 101
140	Specification Section 23 05 05 – Section 3.3.C - Section 3.3.C states that, as a general rule, all copper materials are to be turned over to the Owner. This is highly impractical if not impossible.	10/6/2026	Disregard this specification requirement. WTJV would like to explore salvage opportunities such as these during preconstruction.
141	Specification Section 23 05 05 – Section 3.3.C - Please clarify who will retain the salvage rights to ferrous and non-ferrous materials generated as part of the demolition work.	10/6/2026	The demolition and abatement contractor will retain salvage rights for any equipment and like not specifically identified within all the specifications (i.e. 02 41 00, 3.3) and owners salvage list.
142	Proposal Form 00 41 16 – Item 4 - Item 4 states that the contractor is to identify the cost of a bond in lieu of enrollment in the SDI program. However, the 00 41 00 Bid Breakdown Form does not provide a line item for this cost to be identified as an alternate. Where should the contractor identify the cost of the bond in the bid submission?	10/6/2026	Please reference answers to questions 5,7, and 76.
143	Specification Section 31 20 00 – Section 1.02.D.5 - Section 1.02.D.5 references a Pre-Demolition Geotechnical Exploration Report prepared by S&ME, dated March 10, 2025. However, the Special Conditions, Article 5.1, states that no geotechnical information is available. Could a copy of the referenced geotechnical report be made available for review and use in preparing the bid?	10/6/2026	Please reference answer to question 66
144	Asbestos / Hazardous Materials Abatement - The inspection reports allude to several materials tested to contain asbestos, but no quantities are listed. How do we bid “material types” without any listed “quantities”?	10/6/2026	For any such conditions, trade partners shall provide unit rates with this their proposal response for materials tested to contain asbestos, but indicate no quantities. Please provide a complete list for review.
145	Asbestos / Hazardous Materials Abatement - As a suggestion, can unit rates be established for various items “tested to contain asbestos” but have no quantities provided?	10/6/2026	For any such conditions, trade partners shall provide unit rates with this their proposal response for materials tested to contain asbestos, but indicate no quantities. Please provide a complete list for review.
146	Asbestos / Hazardous Materials Abatement - Specific to Ag North – perimeter spray-on insulation. Has this material been tested and is it asbestos containing?	10/6/2026	Yes, this perimeter spray on insulation is definitely asbestos containing. This was not sampled by Chase Environmental. Proper abatement of this insulation is required at all levels around the entire perimeter of the Ag North building. Assume 10' width and 4" in average depth in all areas. Include investigation and sampling during preconstruction to confirm Asbestos containing.
147	Asbestos / Hazardous Materials Abatement - Who is responsible to check lab drains for mercury and how is this unknown to be accounted for in the contractor’s bid?	10/6/2026	The demolition and abatement contractor shall check drains for hazardous waste. If this condition is not identified within the hazardous materials reporting, WTJV will utilize the work scope allowance for compensation
148	Asbestos / Hazardous Materials Abatement - Will labs be decommissioned by UK to include removal of loose chemicals?	10/6/2026	Please reference answer to question 78
149	Asbestos / Hazardous Materials Abatement - Who is responsible to pre-clean “glass acid pipe” prior to building abatement / demolition?	10/6/2026	The demolition and abatement contractor is responsible for proper handling as required by AHJ and any other State and Federal requirements
150	Asbestos / Hazardous Materials Abatement - The AG north hazardous materials report has the cover, figures, sample logs and laboratory results included. Can the narrative with the summary of asbestos and PCB findings, quantities and recommendations be provided?	10/6/2026	Please reference answer to questions 67
151	How do we arrange for another site visit?	10/6/2026	see addendum #1, site tours were conducted in late September and Early October
152	Please identify loose furnishings / furniture intended to be left by the Owner for handling / disposal by the demolition contractor?	10/6/2026	All contents such as these and similar within the building will be the responsible of the demolition and abatement contractor to remove
153	Will the salvage trees be removed by Walsh Turner?	10/6/2026	Please reference answer to question 124 and B.2 work scope item 26 for work scope details
154	Will Walsh Turner provide fuel and maintenance on the Polaris Rangers?	10/6/2026	Yes
155	Please confirm if the following items listed in Exhibit B.2, Scope Clarifications, Alternates, and Contract Breakdown, Pages 3 of 10 through 9 of 10, are included in the demolition contractor's scope or will be completed by others: Items 4.24.c, 4.24.d, 4.24.e, 4.24.f, 4.24.f.i, 4.24.l, 4.24.m, 4.24.o, 4.24.s, 4.24.t, 4.24.u, 4.26, 4.26.a, 4.28, 4.28.a, 4.29, 4.29.a, 4.29.b. If included in demolition contractor's scope of work, are all items noted to be completed within the provided schedule, dated 17-Aug-26?	10/6/2026	Yes all items are included with ESI-010 work scope. Please reference answer to question 121 for additional details.. WTJV will review timing for the items like the barrier fencing, and asphalt completion with the selected contractor during preconstruction.
156	Exhibit B.2, Scope Clarifications, Alternates, and Contract Breakdown, Item 4.2, Page 2 of 10: Please provide an approximate anticipated duration of preconstruction services activities and at what capacity the demolition contractor will be required to provide services throughout the preconstruction process.	10/6/2026	WTJV expects the duration to be from contract award through the project major demolition start May 2027. This will be in various capacities in order to finalize the demolition planning and other details of this work scope for a project of this size, scale and location.
157	Please provide details on the expected capping/sealing of the tunnel from the Seed House to the Boiler Plant. Is this tunnel to be capped/sealed at the Limits of Demolition?	10/6/2026	See answer to question 89. Coordinate with CM and discussions during preconstruction
158	Please confirm if demolition and removal of the steel structure canopy, masonry canopy columns, and masonry walls attached to the chandler med center as shown on Drawing 3.2-AD100.	10/6/2026	Confirmed. This demolition is included. See addendum 3 information regarding further clarification for the Pavilion A canopy work
159	Please provide the complete Agricultural Science Center North hazardous materials assessment, including the narrative, findings/conclusions, and quantity tables for all identified ACM, PCB-containing materials, and hazardous/universal waste.	10/6/2026	Please see information contained in addendum #1 and other answers regarding same details contained within this RFI log.
160	Please confirm whether hazardous-material abatement within Greenhouses 7, 9, 11, and 12 is excluded from this package along with their demolition, or whether the abatement contractor is still responsible for regulated materials identified in those structures.	10/6/2026	Confirmed, this work scope is by others.

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161	Please define the exact hazardous-material abatement limits for tunnel systems TL-1 and TL-2 and identify which building/bid line each tunnel segment is to be carried under.	10/6/2026	See answer to question 161, similar limits for tunnel.
162	Please clarify how the requirement to treat "like materials" as hazardous is intended to be administered relative to the \$50,000 Additional Abatement allowance. Will newly discovered like materials be charged against the allowance once documented and authorized?	10/6/2026	Please reference answers to questions 145, 146. WTJV will evaluate newly discovered materials for payment under the allowance.
163	Please confirm who will perform post-vacancy roof sampling and how any newly identified ACM roofing will be compensated. Should bidders exclude currently unsampled roofing from base bid and address it through the Additional Abatement allowance/change process?	10/6/2026	Roof sampling shall be included by the Demolition and Abatement trade partner. Any newly identified hazardous materials on the roof areas, not included on the current reports will be included under the allowance
164	For PCB-positive caulk, please define the required extent of porous substrate removal adjacent to the caulk. Should pricing assume removal of a specific width/depth of brick, concrete, CMU, wood, or other substrate, or will limits be established by the project environmental consultant in the field?	10/6/2026	Please refer to the answers to questions 65, 67, 72 and 75
165	Please identify which movable chemicals, laboratory contents, compressed-gas cylinders, oils, batteries, lamps, thermostats, refrigerants, and other universal/hazardous waste will be removed by the University prior to turnover and which items remain in the abatement contractor scope.	10/6/2026	Please reference answer to question 78
166	Exhibit B.2 references hazardous-material reports prepared by S&ME. The issued building hazardous-material reports are prepared by Chase Environmental Group. Please confirm the Chase reports issued as Exhibits 00 24 13.02-(1 through 5) are the controlling reports for bid purposes and identify any superseding reports/addenda.	10/6/2026	Please reference answers to questions 68 and 107
167	Please confirm the full scope expected of the abatement contractor-retained third-party Environmental Consultant/Industrial Hygienist, including work-plan review, daily oversight frequency, air monitoring, clearance sampling, laboratory analysis, PCB verification, and final Clean Letter requirements.	10/6/2026	Yes, the demolition and abatement contractor shall include a 3rd party consultant for these purposes. Clarify details as part of your operation plan submitted with your proposal
168	Please define the acceptance criteria for the required "100% clean letter" / "zero hazardous materials remain" condition. Is the certification limited to the hazardous materials identified in the contract reports and authorized discoveries within accessible project areas?	10/6/2026	WTJV expects at the end of your demolition and abatement work for each building and area that each location is clean and free of any hazardous materials. Clarify details as part of your operation plan submitted with your proposal
169	Please provide the specific rooms, floors, chases, mechanical rooms, and flooring areas that will be available for the December 21, 2026 through January 9, 2027 early-abatement window.	10/6/2026	Please reference answer to question 109
170	Please confirm the permitted work hours for the winter-break early-abatement period and whether overtime, night shift, weekends, and holiday work are mandatory base-bid requirements or contractor-selected means and methods.	10/6/2026	Please reference answer to question 109
171	For early work performed while portions of Ag North and Garrigus remain occupied/operational, please identify required occupied-area protection, approved worker/waste routes, deacon locations, negative-air exhaust locations, emergency-access restrictions, and daily turnover requirements.	10/6/2026	Please reference answer to question 109
172	Exhibit B.2 references tile removal with "sealed concrete after removal" during winter-break work. Please identify the required sealer product/system, surface-preparation standard, and whether this floor sealing is part of the abatement contractor base scope.	10/6/2026	Please reference answer to question 109. Yes, use sealer as needed. Expectation is to use a standard clear sealer if necessary at the removed areas to allow usage the next day. These details and planning can be verified during preconstruction
173	Please define post-removal PCB verification requirements. Is completion based on visual inspection only, or are wipe/bulk samples of adjacent substrates required before release?	10/6/2026	Complete per the AHJ, State and any Federal requirements. Utilize your 3rd party consultant to provide suggested details for your operational work plan submitted with your proposal.
174	Please identify approved locations for asbestos/PCB waste containers, roll-offs, box trucks, and temporary hazardous-waste storage during each phase, including any restrictions on container size, duration, or haul hours.	10/6/2026	WTJV will work with the selected contractor during preconstruction to identify and plan these details.
175	Please provide the intended quantity basis for greenhouse asbestos-containing glazing/caulk. The report references approximately 60,000 SF of glass roof/wall area; confirm whether bidders are to field-takeoff linear feet of glazing compound/caulk or assume removal associated with the full glazing system.	10/6/2026	Assume removal per the environmental reporting and include pricing for the worse case scenario which would be the full glazing system or worse case. Environmental reporting contains existing room and other locations to quantify.
176	Please confirm whether historical ACM at the Garrigus cooling tower was completely removed during the prior renovation and provide abatement closeout documentation. If documentation is unavailable, should bidders carry investigation/removal in base bid or through the allowance?	10/6/2026	Please reference answer to questions 73
177	Please provide supplemental quantities for hazardous materials in secured laboratory and USDA basement areas that are identified as limited access/secured areas where quantities were not fully verified.	10/6/2026	Quantities are not available at this time.
178	Please provide building elevations / quantities for PCB-positive exterior caulks at Ag North, including window frames, expansion joints, dock/entry doors, vent frames, and auditorium exterior locations.	10/6/2026	These are not available at this time. See addendum #1 containing the Environmental Reporting
179	Given that the EQM survey did not identify sampled ACM or regulated PCB caulk, please confirm the EQM abatement bid line is intended to cover only identified hazardous/universal waste, final investigation, and any subsequently authorized concealed materials.	10/6/2026	Please refer to the answers to questions 65, 67, 72 and 75. Concealed materials not included in the report cannot be included if unknown.
180	Please provide the required abatement/remediation work-plan submittal format, review duration, required preparer qualifications, and any project-specific forms beyond regulatory requirements.	10/6/2026	Report shall meet AHJ, State, and Federal requirements. WTJV will work with selected contractor during preconstruction for any specific format.
181	Please confirm that concealed hazardous materials not shown in the issued reports and not reasonably identifiable during the pre-bid site walk will be addressed by written allowance authorization or change order before removal.	10/6/2026	Please reference answers to questions 74, 105, 145, 146

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182	Will the Demolition Package be covered under the CCIP Program?	10/6/2026	Please reference answers to questions 4, 76, 89, and 101
183	Will the Selected Demolition Contractor have to carry Professional Liability Insurance for this Project?	10/6/2026	Provide insurance requirements as listed in the B.2 work scope
184	Exhibit B.2 - Paragraph Scope Clarifications - Item# 22 states - This Subcontractor, their Abatement Subcontractor, and/or the Subcontractor’s Consultant performing this design, is required to provide, evidence, and maintain general liability insurance in an amount not less than \$25,000,000 general / excess per occurrence and \$50,000,000 aggregate coverage. Please confirm that these dollar amounts are correct?	10/6/2026	These are correct
185	DWG 3.2-SE-101 note 14 shows one switchgear serving the Environmental Quality Management building and Parking Garage #1 (Substation #1 in the W.P. Garrigus basement mechanical room per the EQM as-builts, 0490_EnvQM_1456_SET.pdf E08) and note 13 a basement switchgear serving Ag North, the Head House and the Greenhouses; Exhibit B.2 4.21.a demolishes Garrigus (3) before EQM (4), 4.21.e and 4.24.m require temporary back feeds to keep buildings on line, and Allowance 7.2 is \$75,000 for back feeds. Please confirm in writing that all buildings in BP#002.00 (Ag North, Garrigus, EQM, Seed House, Head House and Greenhouses #1-6) will be de-energized and isolated together at turnover, so that no back feed or temporary power to EQM or Parking Garage #1 is required; whether EQM will be demolished first rather than fourth; and who de-energizes and isolates Substation #1 and the feed to Parking Garage #1 (UK Utilities & Energy Management, Kentucky Utilities, or this contractor).	10/6/2026	Confirmed, no back feed or temporary power to EQM or Parking Garage #1 is required
186	Temporary weather protection and dust enclosures, locations and duration The documents require temporary enclosures and weather protection but don't say where: 02 41 00 §3.2.C–D: "Provide temporary dustproof partitions between demolition areas and occupied areas" and "temporary weather protection and insulation... Insulation value: R 19." 02 41 16 §3.2.B.3: "Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction." Supplementary Conditions Art. 32.5: "construct temporary dust partitions at locations and as detailed on drawings." No drawing shows any. Section 01 50 00, which these specs defer to, was not issued. Please confirm: At which buildings and openings is temporary weather protection required? Do the Art. 32 interior enclosures apply to the winter-break abatement in Ag North and Garrigus? If so, where are they located? When does this contractor's responsibility for weather protection end, given that it runs until new construction by others?	10/6/2026	Interior enclosures apply to the winter-break abatement in Ag North and Garrigus mainly. Clarify as part of your operational work plan submitted with your proposal
187	What exact equipment and furniture will be removed by UK, and what will remain as salvage for us? Building by building (Ag North incl. the auditorium, W.P. Garrigus, EQM, Seed House, Head House and Greenhouses #1-6), please issue an equipment / furniture / contents disposition list in three categories: (a) removed by the University or its movers before turnover; (b) Owner salvage that Renascent removes and delivers (SPEC 02 41 00 3.3 and Appendix A; Exhibit B.2 4.24.i and 4.24.o - air handlers, main air compressors, Yale key cores, HVAC controls); (c) left in place for Renascent to remove and dispose of. Within (a), please confirm that the University removes all laboratory chemicals, compressed-gas cylinders, biological materials and licensed radioactive sources and provides radiological and biological clearance before each building is turned over; if not, issue the inventory so lab-pack disposal and decontamination can be priced. No document lists what furniture, equipment or contents the University takes before turnover. The Garrigus and Seed House reports (3.4) both say 'It is not known which equipment and other related inventory will remain following vacancy of the building'; Garrigus lab doors are posted for Radioactive Material and/or Biological Hazards; the EQM report records only that the consultant 'was informed' the chemical inventory would be removed. The answer moves lab-pack and deacon (7130), owner-salvage rigging and delivery (7735 / 7910), and C&D tonnage (7400) in every building, and lab-pack / clearance is six-figure scope with no home on the Bid Breakdown Form. Supersedes Renascent RFI-21 (lab contents) by sharpening it - estimator-directed 10/04. Exhibit 00 24 13.02-4 (Garrigus) 3.4; Exhibit 00 24 13.02-2 (Seed House) 3.4; Exhibit 00 24 13.02-3 (EQM) 3.4; SPEC 02 41 00 3.3 p.24 and Appendix A; Exhibit B.2 4.24.i and 4.24.o p.4	10/6/2026	Please reference answers to questions 13, 23 ,63, 78 and 153
188	Exhibit B.2 4.21.a sequences demolition (1) Seed House / Head House / Greenhouses, (2) Ag North, (3) W.P. Garrigus, (4) EQM, and 4.21.b-c make the first group available 03/15/2027 and the rest 05/01/2027. Please issue in writing the building-by-building turnover sequence and the date each structure - Ag North (incl. auditorium), Garrigus, EQM, Seed House, Head House, Greenhouses #1-6, and each Pavilion A canopy phase - will be vacated, cleared of University contents and turned over to Renascent; and confirm whether the 03/15/2027 and 05/01/2027 availability dates and the 12/21/2026-01/09/2027 winter-break abatement window in Ag North and Garrigus (4.25.b) still stand.	10/6/2026	Reference B.2 work scope item 21, Demolition Narrative. See addendum 3 information regarding further clarification for the Pavilion A canopy work
189	Once a building has been turned over and vacated, what work hours apply to abatement and demolition inside it? Are second shifts, weekends or continuous operations permitted (B.2 §30 and §32 anticipate multiple shifts; B.1 §1.9.b limits construction areas to 6:30 AM–5:30 PM, Mon–Fri), and what noise or vibration limits apply during off-hours near Pavilion A and the VA Hospital?	10/6/2026	Once the site is captured and buildings are turned over to the project, work hours inside the structures are not regulated, but need to be coordinated with WTJV. Please include these details as part of your operational work plan submitted with your proposal. Please also reference answers to questions 11 and 110.
190	Looking at the Post Demo Logistics Plan, Exhibit 00 31 13.02 there are 2 text boxes that say Gravel and Asphalt Area. Can you clarify the areas these are covering and the spec required for this work?	10/6/2026	Please reference answers to questions 54, 56, and 120

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1.0 ASBESTOS-CONTAINING MATERIALS INSPECTION

1.1 INTRODUCTION

Chase Environmental Group (CEG), on behalf of the University of Kentucky (UK), has compiled this report following an inspection for asbestos-containing materials (ACMs) associated with the Agricultural Science Center North (Ag. North) located on the campus of the University of Kentucky (UK). CEG has prepared this report for use by UK to outline identified environmental concerns associated with asbestos at the subject property prior to the proposed demolition activities. A site location figure and selected site photographs are included within [Appendix A](#).

All inspection and sampling activities were conducted in accordance with the National Emissions Standard for Hazardous Air Pollutants (NESHAP) General Inspection Procedures found within 40 CFR 61, Subpart M. A comprehensive list of all samples taken from the subject property can be found within [Appendix B](#). This report provides background information, limitations and exceptions, scope-of-work performed, assessment results, findings and conclusions, and recommendations.

1.2 BACKGROUND AND SITE SUMMARY

UK has requested this asbestos inspection, as part of the environmental screening inspection, to be included as a component of the preparatory activities prior to the demolition of the subject building. Ag. North, built in the 1960s, is located at 1100 South Limestone in Lexington (Fayette County), Kentucky.

Asbestos is a general term for a group of fibrous minerals (primarily chrysotile, amosite, and crocidolite) that have long been used as a fireproof insulation and as a strengthener in pipe insulation, roofing tiles, floor tiles, mastic, wall coverings, and other materials. Undisturbed ACMs are not dangerous. However, when ACMs are broken or torn, such as during renovation or demolition, the fibers can be spread into the air, especially if the material is friable. A material is considered an ACM if it is found to contain greater than 1% of asbestos. Studies have shown that inhaling these fibers can cause diseases such as asbestosis, lung cancer, and mesothelioma.

1.3 LIMITATIONS AND EXCEPTIONS

This assessment pertains directly to those areas observed and sampled at the subject property and is not intended to provide data or information for the entirety of the structure. Only those areas accessible during the site visit, including areas considered “typical” of those conditions and materials found throughout the properties, were sampled for laboratory analysis.

Due to the ongoing use of the subject buildings, Chase Environmental did not collect samples from the roofing areas in order to protect the integrity of the existing building materials and/or occupants of the structures. Samples should be collected prior to the demolition of the subject structure following vacancy in order to determine the presence or absence of asbestos-containing materials.

None of the work performed hereunder shall constitute or be represented as a legal opinion of any kind or nature but shall be a representation of findings from the site visits. There are no warranties or guarantees, expressed or implied, included or intended by the report, except that it has been

prepared in accordance with the current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by professional consultants or firms performing the same or similar service.

Changes in the condition of the structure may occur with time due to either natural processes or human activities. The findings presented in this report are based on site conditions existing at the time of the investigation. The potential exists for ACM to be present in areas that may not be revealed until demolition activities begin (example: below grade vapor barriers, interior pipe chases, etc.). During demolition activities, if potential ACM materials are discovered that are not identified within this report, those materials should be sampled by a licensed inspector, analyzed by an accredited laboratory, and removed accordingly.

This report was compiled for the sole use of the UK and their client(s). This report is not intended to be distributed or relied upon by third parties without the written permission of CEG.

1.4 SCOPE OF WORK

CEG performed the following scope-of-work, which was based, in part, upon information provided by persons deemed knowledgeable of the property and our experience with similar projects.

The survey was performed in order to collect and identify ACM that would likely be disturbed during the proposed demolition activities. Mr. Christopher Stovall, a Kentucky accredited asbestos inspector, conducted the survey activities. A copy of Mr. Stovall's license and certification is included within [Appendix B](#).

Samples of potential ACM were collected from homogeneous areas (HA) that will be likely be disturbed during demolition activities, and consisted of materials that were similar in color, texture, and size. The suspect ACM samples were delivered to San Air Laboratory, Inc (San Air) in North Chesterfield, Virginia or McCall & Spero Environmental Inc. (McCall & Spero) in Louisville, Kentucky for Polarized Light Microscopy (PLM) analysis under chain-of-custody protocols. The National Voluntary Laboratory Accreditation Program (NVLAP) accredits San Air and McCall & Spero for asbestos fiber analysis. A comprehensive list of all asbestos samples taken from the subject property can be found within [Appendix C](#). Sample location diagrams are included within [Appendix D](#). A copy of the laboratory analytical results are included within [Appendix E](#).

1.5 RESULTS

A summary of the sampled building materials positive for asbestos are noted in the following table:

ASBESTOS SAMPLE LOCATIONS AND RESULTS

SAMPLE #	SAMPLE LOCATION	MATERIAL	APPROX QUANTITY*	ASBESTOS %
ANI-01A	INTERIOR 3 RD FLOOR (RM S329-C)	TAN VINYL COVE BASE MASTIC	-	< 1% Chrysotile
ANI-02A	INTERIOR 3 RD FLOOR (RM N305)	BROWN VINYL COVE BASE MASTIC	-	< 1% Chrysotile

ASBESTOS SAMPLE LOCATIONS AND RESULTS (CONT.)

SAMPLE #	SAMPLE LOCATION	MATERIAL	APPROX QUANTITY*	ASBESTOS %
ANI-07A	INTERIOR AUDITORIUM	BLACK 9X9" VCT FLOOR TILE <i>BLACK MASTIC NEGATIVE</i>	4,000 SF*	2% Chrysotile
ANI-08A	INTERIOR GROUND FLOOR HALL @ ROOM C8	TAN 9X9" VCT FLOOR TILE <i>BLACK MASTIC NEGATIVE</i>	50,000 SF*	4% Chrysotile
HISTORICAL UK DATA	INTERIOR ROOMS S129A & S129	BLACK VCT FLOOR TILE MASTIC	Included Above w/ Floor Tile	≥ 5% Chrysotile TEM Method
HISTORICAL UK DATA	INTERIOR N220-F, A14A, & A14D	GYPSUM BOARD MUD	TBD	≥ 4% Chrysotile TEM Method
HISTORICAL UK DATA	INTERIOR THROUGHOUT	GRAY SPRAY-ON FIREPROOFING VARIOUS CEILINGS	10,000 SF*	40-45% Amosite
ANI-24A	INTERIOR 1 ST FLOOR HALLWAY W100	GRAY WINDOW FRAME GLAZING	-	< 1% Chrysotile
ANI-30A	INTERIOR 3 RD FLOOR ROOM/LAB N321	DARK GRAY INTERIOR VENT HOOD WALLS	TBD <i>LIMITED ACCESS TO RESTRICTED LABS</i>	20% Chrysotile
ANI-34A	INTERIOR 3 RD FLOOR STAIRWELL B	WHITE FIRE DOOR INSULATION	100 EA*	20% Amosite 5% Chrysotile
ANI-44A	INTERIOR GROUND FLOOR RM. C4 (<i>GREEN PIPE</i>)	WHITE PIPE ELBOW INSULATION (HARD)	1,500 EA*	2% Amosite
T-03A	INTERIOR TUNNEL (TL-1) <i>LARGE STEAM LINE (RED)</i>	GRAY PIPE ELBOW INSULATION (HARD)	Included Above	15% Chrysotile
ANE-14A	EXTERIOR FOUNDATION WALL ROOM A22 WALL	BLACK FOUNDATION VAPOR BARRIER (BELOW GRADE)	14,000 SF*	3% Chrysotile

RED – Considered an ACM as defined by the EPA

LF = Linear Feet SF = Square Feet EA = Each

*ALL QUANTITIES MUST BE FIELD VERIFIED BY THE CONTRACTOR

1.6 FINDINGS AND CONCLUSIONS

Chase conducted this ACM inspection in accordance with the scope of services as defined in this report. Our assessment has revealed the following ACM materials:

- Asbestos is present within various colored 9x9" VCT floor tile located throughout the interior of the subject property. Historic UK sampling records also indicated the presence of asbestos within various samples of the associated black VCT tile mastic and should

therefore be assumed as an ACM. All associated floor tile and mastic are in non-friable condition and are considered Category I non-friable materials. If demolition activities are performed in accordance with the NESHAP regulations, this material is not considered Regulated Asbestos-Containing Material (RACM).

- Historic UK sampling records indicated that the gypsum board mud located throughout various interior areas of the subject property were positive for asbestos ($\geq 4\%$ by TEM) and should therefore be assumed as an ACM. All associated gypsum board mud is in friable condition and considered RACM.
- Historic UK sampling records indicated that the spray-on fireproofing located throughout various interior ceiling areas of the subject property were positive for asbestos and should therefore be assumed as an ACM. All associated fireproofing is in friable condition and considered RACM.
- Asbestos is present within the dark gray interior vent hood wall material located throughout various laboratories of the subject property. The associated vent hood walls are in non-friable condition and are considered a Category II non-friable material that has a high probability of becoming friable (crumbled, pulverized, or reduced to powder) by the forces expected to act on the material in the course of demolition and is considered a RACM.
- Asbestos is present within the insulation of various fire doors (stairwells, mechanical rooms, etc.) located throughout the interior of the subject property. All associated insulating core material is in friable condition and is considered RACM.
- Asbestos is present within the hard Thermal System Insulation (TSI) associated with the pipe elbows, tees, hangers, valves, etc. throughout the interior of the subject property. Historic UK sampling records also indicated the presence of asbestos within the aforementioned TSI materials. All hard TSI fittings located throughout interior of the Ag. North Building and Auditorium should be assumed positive for asbestos and abated accordingly. All associated TSI is in friable condition and considered RACM.
- Asbestos is present within the black foundation vapor barrier located below grade on the exterior of the subject property. All associated vapor barrier coating is in non-friable condition and considered a Category I non-friable material. If demolition activities are performed in accordance with the NESHAP regulations, this material is not considered RACM.

1.7 RECOMMENDATIONS

Based upon the results of this asbestos containing materials assessment, CEG recommends the following:

- If concealed ACM is observed during demolition activities, it will be necessary to investigate and collect bulk samples in order to confirm the presence or absence of asbestos content. Should potential ACM(s) be discovered during the demolition activities that have not previously been sampled, all activities that disturb said material(s) shall cease until the suspect material(s) have been sampled.

- Roofing materials should be sampled when the structures becomes vacant in order to protect the integrity of the existing structure and occupants.
- If demolitions to any areas outside of the original project scope are planned, it will be necessary to investigate and collect bulk samples in order to confirm the presence or absence of asbestos content.

2.0 POLYCHLORINATED BIPHENYL (PCB) IN CAULK INSPECTION

2.1 BACKGROUND AND SITE SUMMARY

Chase Environmental Group (CEG), on behalf of the University of Kentucky (UK), has compiled this report following an inspection for Polychlorinated Biphenyl(s) (PCBs) in various caulking materials that may be disturbed during the demolition of the Agricultural Science Center North (Ag. North) located on the campus of the University of Kentucky (UK). Ag. North, built in the 1960s, is located at 1100 South Limestone in Lexington (Fayette County), Kentucky.

The objective of this project was to collect materials to assist in the identification of hazardous, non-liquid PCBs in caulking prior to the proposed demolition of the subject property. A comprehensive list of all PCB samples taken from the structure can be found within [Appendix B](#). This report provides background information, scope-of-work performed, limitations and exceptions, assessment results, and recommendations.

PCBs belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizer in paints, plastic, and rubber products; in pigment, dyes, and carbonless copy paper; and many other industrial applications. PCBs have been demonstrated to cause cancer, as well as a variety of other adverse health effects on the immune system, reproductive system, nervous system, and endocrine system. EPA. (January 31, 2013). Polychlorinated Biphenyls. (Retrieved from <http://www.epa.gov/osw/hazard/tsd/pcbs/pubs/about.htm>)

2.2 LIMITATIONS AND EXCEPTIONS

This assessment pertains directly to those areas observed and sampled at the subject property and is not intended to provide data or information for the entirety of the structures. Only those areas accessible during the site visit, including areas considered “typical” of those conditions and materials found throughout the property, were sampled for laboratory analysis.

None of the work performed hereunder shall constitute or be represented as a legal opinion of any kind or nature but shall be a representation of findings from the site visit. There are no warranties or guarantees, expressed or implied, included or intended by the report, except that it has been prepared in accordance with the current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by professional consultants or firms performing the same or similar service.

Changes in the condition of the buildings may occur with time due to either natural processes or human activities. The findings presented in this report are based on site conditions existing at the time of the investigation.

This report was compiled for the sole use of the UK and their client(s). This report is not intended to be distributed or relied upon by third parties without the written permission of CEG.

2.3 SCOPE OF WORK

PCB samples were collected by Chase Environmental to identify the presence of caulking with a PCB content of greater than or equal to 50 parts per million (PPM). Caulking material containing PCBs with 50 PPM or greater are considered *PCB Bulk Product Waste* and are subject to regulated handling and disposal protocols specified in 40 CFR 761.62. As part of the inspection activities, PCB caulk samples were collected and shipped to Waypoint Analytical in Memphis, Tennessee under chain-of-custody protocols for analysis by Method 8082A from the EPA's SW-846. A comprehensive list of all PCB samples taken from the subject property can be found within [Appendix C](#). Sample location diagrams are included within [Appendix D](#).

2.4 RESULTS

Activities associated with the PCB inspection at Ag. North generated the following positive results. This chart only includes materials with a PCB content of ≥ 50 PPM PCBs. A copy of the laboratory analytical results are included within [Appendix E](#).

PCB CONTAINING MATERIALS

SAMPLE #	LOCATION	MATERIAL	APPROX QUANTITY*	RESULTS (PPM)
PA-02	EXTERIOR MAIN BUILDING	GRAY EXTERIOR WINDOW FRAME CAULK @ AL. FRAME & BRICK	7,000 LF*	105,000
PA-03	EXTERIOR MAIN BUILDING	GRAY EXTERIOR VENT FRAME CAULK GROUND FLOOR	200 LF*	135,000
PA-04	EXTERIOR MAIN BUILDING AL. WINDOW BASE	GRAY EXTERIOR EXPANSION CAULK JOINT @ AL. FRAME & CONCRETE FL	INCLUDED W/ PA-02	1,420
PA-06	EXTERIOR MAIN BUILDING	GRAY EXTERIOR WINDOW FRAME CAULK @ AL. FRAME & BRICK	INCLUDED W/ PA-02	162,000
PA-08	EXTERIOR MAIN BUILDING	GRAY EXTERIOR DOCK BAY DOOR FRAME CAULK	INCLUDED W/ PA-02	136,000
PA-09	EXTERIOR MAIN BUILDING	GRAY EXTERIOR DOCK ENTRY DOOR FRAME CAULK	INCLUDED W/ PA-02	171,000
PA-10	EXTERIOR MAIN BUILDING	GRAY EXTERIOR VENT FRAME CAULK	INCLUDED W/ PA-02	54,000
PA-11	EXTERIOR MAIN BLDG @ AUDITORIUM	LIGHT GRAY EXTERIOR BRICK WALL EXPANSION JOINT CAULK	60 LF	181,000
PA-12	EXTERIOR AUDITORIUM	GRAY EXTERIOR WINDOW FRAME CAULK @ AL. FRAMES & GLASS NOTE: SINCE WINDOW FRAMES ARE LIKELY TO BE REMOVED INTACT AS PART OF THE PCB ABATEMENT ACTIVITIES, REMOVAL OF THIS CAULKING WOULD NOT BE REQUIRED AS IT WOULD BE LEFT UNDAMAGED	-	69,800
PA-13	EXTERIOR AUDITORIUM	GRAY EXTERIOR WINDOW FRAME CAULK @ AL. FRAME & CONCRETE PILLAR	INCLUDED W/ PA-02	212,000

*ALL QUANTITIES MUST BE FIELD VERIFIED BY THE CONTRACTOR
LF = LINEAR FEET

PCB CONTAINING MATERIALS (CONT.)

SAMPLE #	LOCATION	MATERIAL	APPROX QUANTITY*	RESULTS (PPM)
PA-14	EXTERIOR AUDITORIUM	LIGHT GRAY EXTERIOR DOCK DOOR FRAME CAULK @ METAL FRAME & BRICK	INCLUDED W/ PA-02	157,000
PA-15	EXTERIOR AUDITORIUM	LIGHT GRAY EXTERIOR ENTRY DOOR FRAME CAULK @ METAL FRAME & BRICK	INCLUDED W/ PA-02	237,000

*ALL QUANTITIES MUST BE FIELD VERIFIED BY THE CONTRACTOR

LF = LINEAR FEET

2.5 FINDINGS & CONCLUSIONS

CEG has performed this PCB inspection at the Agricultural Science Center North on the campus of UK in Lexington (Fayette County), Kentucky according to the scope of services as defined in this report. Our assessment has revealed the following materials with PCB concentrations of greater than 50 PPM:

- PCBs were indicated within the 'Gray Window Frame Caulk' located on all exterior windows associated with Ag. North & the attached Auditorium.

Note: PCB caulking material is located at all brick & concrete substrates.

- PCBs were indicated within the 'Gray Vent Frame Caulk' located on the exterior of Ag. North.

Note: PCB caulking material is located at all brick & concrete substrates.

- PCBs were indicated within the exterior 'Gray Expansion Joint Caulk' located at the base of the aluminum window frames and the concrete walkway surrounding the 1st, 2nd, & 3rd floors of Ag. North.

- PCBs were indicated within the exterior 'Gray Door Frame Caulk' located on the all entry doors associated with Ag. North & the attached Auditorium.

Note: PCB caulking material is located at all brick & concrete substrates.

- PCBs were indicated within the vertical exterior 'Light Gray Brick Wall Expansion Joint' located on 'Sides B & D' where Ag. North joins to the Auditorium.

- PCBs were indicated within the exterior 'Gray Window Frame Caulk (Glazing/Putty)' located at the glass pane and aluminum frame of the Auditorium windows.

Note: Window Glazing/Putty located on the main Ag. North Building and the attached 'Lobby L102' windows/doors were negative for PCBs >50 ppm.

2.6 RECOMMENDATIONS

Based upon the results of this non-liquid PCB assessment, CEG recommends the following:

PCBs are subject to a variety of specific federal, state, and local regulatory requirements. The following summarizes the major regulatory requirements:

- All materials with a non-liquid PCB content of ≥ 50 PPM must be properly removed prior to the demolition of the subject structure that disturbs said material(s). Due to the likelihood of PCBs migrating to adjacent surfaces, any porous substrate in contact with PCB containing caulking should be removed. Abatement should occur in accordance with federal, state, and local regulations.
- All PCB Bulk Product Waste must be disposed of in accordance with 40 CFR 761.62. Transportation of said material must occur in accordance with any and all applicable local, state, and federal regulations.
- The selected contractor must be trained in segregation, characterization, handling, transporting, and disposing of hazardous and non-hazardous materials. All abatement activities should implement procedures to minimize dust. Work areas should be restricted to authorized personnel.
- All contractors and employees should be alerted to the presence and location of the identified PCBs and hazards, in accordance with applicable Occupational and Safety Health Administration (OSHA) regulations. This is the responsibility of the contractor(s).
- If applicable, various regulatory agencies (state/local/federal) must be notified of any abatement prior to conducting said work. The licensed contractor typically submits these notifications
- A standardized specification for abatement should be established for the removal of PCB containing materials identified within this report.
- Should potential PCBs be discovered during demolition activities that have not previously been sampled, all demolition activities which disturb the potential PCBs should cease until the material(s) have been sampled. If PCBs are discovered during demolition activities, appropriate abatement should occur in accordance with state and local regulations.

Implementation of these recommendations will help ensure compliance with regulatory requirements.

3.0 HAZARDOUS-CONTAINING MATERIALS INSPECTION

3.1 BACKGROUND AND SITE SUMMARY

Chase Environmental Group (CEG), on behalf of the University of Kentucky (UK), has compiled this report following an inspection for hazardous/potentially hazardous-containing materials associated with the Agricultural Science Center North (Ag. North) located on the campus of the University of Kentucky (UK). Ag. North, built in the 1960s, is located at 1100 South Limestone in Lexington (Fayette County), Kentucky.

The objective of this investigation was to identify regulated materials that may have an environmental impact to the property or workers during the proposed demolition. This assessment included an inspection for previously unidentified environmental concerns, other than asbestos-containing materials (ACMs) and non-liquid PCBs, that may be disturbed or impact the site during demolition.

3.2 LIMITATIONS AND EXCEPTIONS

This inspection pertains directly to those areas observed within the subject buildings and conclusions and recommendations of this report are based solely upon the conditions present at the site during the sampling period. Only those areas accessible during the site visit, including areas considered ‘typical’ of those conditions and materials found throughout the properties, were observed.

None of the work performed hereunder shall constitute or be represented as a legal opinion of any kind or nature but shall be a representation of findings from the site visit. There are no warranties or guarantees, expressed or implied, included or intended by this report, except that it has been prepared in accordance with the current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by professional consultants or firms performing the same or similar services.

Changes in the condition of buildings may occur with time due to either natural processes or human activities. The findings presented in this report are based on site conditions existing at the time of the investigations.

This report was compiled for the sole use of the University of Kentucky and their client(s). This report is not intended to be distributed or relied upon by third parties without the written permission of CEG.

3.3 SCOPE OF WORK

The purpose of this site investigation was to visually inspect areas of the subject buildings for any regulated and/or potentially hazardous-containing materials/equipment in addition to ACMs & PCBs in Caulk. Additional testing may be deemed necessary if waste characterization is required.

Accessible areas were inspected by CEG personnel for the presence of the following hazardous materials:

- Materials and equipment potentially containing polychlorinated biphenyls (PCBs); including, transformers, capacitors, oil containing circuit breakers, and light ballasts (this does not include sealants or caulks).
- Materials and equipment potentially containing mercury; including, thermostats, thermometers, switches, relays, and high intensity lights.
- Equipment potentially containing radioactive materials; including, exit signs, smoke detectors, and controls.
- Materials and equipment potentially containing used oils; including, HVAC systems and elevators.
- Equipment potentially containing Chlorofluorocarbons (CFCs) and/or Hydrochlorofluorocarbons (HCFCs); including, components associated with the HVAC system and other cooling equipment; and
- Other potentially hazardous materials including spent cleaning solvents, paints, and batteries.

3.4 RESULTS

The investigation yielded the following results:

- Various thermostats, gauges, switches, relays, etc. were found throughout the interior of the subject property. These items may contain mercury.
- Emergency lighting and 'Exit' signs were found throughout the subject property that potentially contain lead-acid battery back-up power supplies and/or small amounts of radioactive material.
- Smoke detectors were found within the subject building that may contain a small amount of radioactive material.
- Refrigerators, coolers, HVAC systems, and water fountains were found throughout the interior of the subject property that contain various refrigerants, CFCs, and/or other harmful chemicals.
- Various transformers, switches, and other electrical equipment were found within the subject property that may contain petroleum-based products.
- Various laboratory equipment, solid and liquid chemicals, gas tanks, etc. were found throughout the interior of the subject property. It is not known which equipment and other related inventory will remain following vacancy of the building.

Note: Due to the restricted access into several of the laboratories, CEG was unable to fully evaluate potential hazardous containing materials and/or equipment. Additionally, several laboratory doors contained caution signs for Radioactive Material and/or Biological Hazards. Prior to the start of demolition activities, these areas should be inspected and reported.

- Multiple containers of household and commercial cleaners were found throughout the interior of the subject property.
- Multiple quart and five-gallon containers of paint were found on the interior of the subject property.
- Multiple air compressors were noted within the subject property which may contain small amounts of petroleum-based products.
- Various sized propylene glycol and other HVAC related chemical containers and holding tanks were noted within the Penthouse of the subject property.
- Elevator systems were noted within the subject property that contain hydraulic fluid and/or other petroleum-based products.
- Compact fluorescent (CFL), high intensity, and/or fluorescent tube lighting were found throughout the interior/exterior of the subject property, that may contain a small amount of Mercury Vapor.

Note: Ballasts, capacitors, and/or switches associated with the aforementioned lighting, may contain petroleum products and/or polychlorinated biphenyls (PCBs).

3.5 CONCLUSIONS AND RECOMMENDATIONS

- Segregation, characterization, removal, and proper disposal of the aforementioned items must occur in accordance with all applicable local, state, and federal regulations. The selected contractor must be trained to segregate, characterize, handle, transport, and dispose of said materials.
- All contractors and employees should be alerted to the presence and locations of the identified and presumed hazards, in accordance with applicable Occupational and Safety Health Administration (OSHA) regulations.
- If applicable, various regulatory agencies (state and local) must be notified of any work prior to conducting said work. The licensed contractor typically submits these notifications.
- Employees who work with hazardous materials should be provided with proper personal protective equipment, as well as the appropriate removal equipment, training, and licensure as applicable.
- All hazardous materials must be disposed of in accordance with the federal, state, and local regulations.
- Removal of hazardous materials should be monitored to ensure that no hazardous material is released into the environment.
- If demolition to any area(s) outside of the University of Kentucky's project scope is planned, it will be necessary to further investigate the areas in order to confirm the presence or absence of hazardous materials.

- If concealed hazardous materials are discovered during the proposed demolition activities that have not previously been identified, all activities that disturb said material(s) shall cease until they have been properly identified, sampled, and/or characterized.

Implementation of these recommendations will help ensure compliance with regulatory requirements.

4.0 SIGNATURES AND QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Prepared by:



1/31/2025

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Date



Qualifications: Mr. Stovall serves as one of CEG's main Environmental Supervisors in various local, private, and governmental projects and has more than fifteen (15) years of environmental consulting experience. Mr. Stovall holds a bachelor's degree in Environmental Health Science from Eastern Kentucky University. Mr. Stovall's experiences include: characterization, profiling, coordination, and disposal of hazardous and non-hazardous liquid and solid wastes; site investigations involving the collection of petroleum impacted soil and/or groundwater; asbestos-containing materials (ACM), lead-based paint (LBP), and polychlorinated biphenyls (PCBs) inspection activities, reporting, abatement specifications, abatement oversight, collection of clearance samples; and indoor air quality (IAQ) investigations, mold inspections, and microbial remediation.

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1.0 ASBESTOS-CONTAINING MATERIALS INSPECTION

1.1 INTRODUCTION

Chase Environmental Group (CEG), on behalf of the University of Kentucky (UK), has compiled this report following an inspection for asbestos-containing materials (ACMs) associated with the W.P. Garrigus Building (Garrigus) located on the campus of the University of Kentucky (UK). CEG has prepared this report for use by UK to outline identified environmental concerns associated with asbestos at the subject property prior to the proposed demolition activities. A site location figure and selected site photographs are included within [Appendix A](#).

All inspection and sampling activities were conducted in accordance with the National Emissions Standard for Hazardous Air Pollutants (NESHAP) General Inspection Procedures found within 40 CFR 61, Subpart M. A comprehensive list of all samples taken from the subject property can be found within [Appendix B](#). This report provides background information, limitations and exceptions, scope-of-work performed, assessment results, findings and conclusions, and recommendations.

1.2 BACKGROUND AND SITE SUMMARY

UK has requested this asbestos inspection, as part of the environmental screening inspection, to be included as a component of the preparatory activities prior to the demolition of the subject building. The Garrigus Building, built in the 1970s, is a ten-story structure with a basement and is located at 325 Cooper Drive in Lexington (Fayette County), Kentucky.

Asbestos is a general term for a group of fibrous minerals (primarily chrysotile, amosite, and crocidolite) that have long been used as a fireproof insulation and as a strengthener in pipe insulation, roofing tiles, floor tiles, mastic, wall coverings, and other materials. Undisturbed ACMs are not dangerous. However, when ACMs are broken or torn, such as during renovation or demolition, the fibers can be spread into the air, especially if the material is friable. A material is considered an ACM if it is found to contain greater than 1% of asbestos. Studies have shown that inhaling these fibers can cause diseases such as asbestosis, lung cancer, and mesothelioma.

1.3 LIMITATIONS AND EXCEPTIONS

This assessment pertains directly to those areas observed and sampled at the subject property and is not intended to provide data or information for the entirety of the structure. Only those areas accessible during the site visit, including areas considered “typical” of those conditions and materials found throughout the properties, were sampled for laboratory analysis.

Due to the ongoing use of the subject buildings, Chase Environmental did not collect samples from the roofing areas in order to protect the integrity of the existing building materials and/or occupants of the structures. Samples should be collected prior to the demolition of the subject structure following vacancy in order to determine the presence or absence of asbestos-containing materials.

CEG was unable to access and sample various areas of the basement USDA portion of the subject property. Once this area becomes vacant, any material(s) not homogenous with samples collected historically or as part of this report should be sampled and analyzed to determine the presence or absence of asbestos-containing materials.

None of the work performed hereunder shall constitute or be represented as a legal opinion of any kind or nature but shall be a representation of findings from the site visits. There are no warranties or guarantees, expressed or implied, included or intended by the report, except that it has been prepared in accordance with the current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by professional consultants or firms performing the same or similar service.

Changes in the condition of the structure may occur with time due to either natural processes or human activities. The findings presented in this report are based on site conditions existing at the time of the investigation. The potential exists for ACM to be present in areas that may not be revealed until demolition activities begin (example: below grade vapor barriers, interior pipe chases, etc.). During demolition activities, if potential ACM materials are discovered that are not identified within this report, those materials should be sampled by a licensed inspector, analyzed by an accredited laboratory, and removed accordingly.

This report was compiled for the sole use of the UK and their client(s). This report is not intended to be distributed or relied upon by third parties without the written permission of CEG.

1.4 SCOPE OF WORK

CEG performed the following scope-of-work, which was based, in part, upon information provided by persons deemed knowledgeable of the property and our experience with similar projects.

The survey was performed in order to collect and identify ACM that would likely be disturbed during the proposed demolition activities. Mr. Christopher Stovall, a Kentucky accredited asbestos inspector, conducted the survey activities. A copy of Mr. Stovall's license and certification is included within [Appendix B](#).

Samples of potential ACM were collected from homogeneous areas (HA) that will be likely be disturbed during demolition activities, and consisted of materials that were similar in color, texture, and size. The suspect ACM samples were delivered to McCall & Spero Environmental Inc. (McCall & Spero) in Louisville, Kentucky for Polarized Light Microscopy (PLM) analysis under chain-of-custody protocols. The National Voluntary Laboratory Accreditation Program (NVLAP) accredits McCall & Spero for asbestos fiber analysis. A comprehensive list of all asbestos samples taken from the subject property can be found within [Appendix C](#). Sample location diagrams are included within [Appendix D](#). A copy of the laboratory analytical results are included within [Appendix E](#).

1.5 RESULTS

A summary of the sampled building materials positive for asbestos are noted in the following table:

ASBESTOS SAMPLE LOCATIONS AND RESULTS

SAMPLE #	SAMPLE LOCATION	MATERIAL	APPROX QUANTITY*	ASBESTOS %
GI-02A	INTERIOR BASEMENT HALLWAY B53	BLACK MASTIC WHITE 12X12" VCT NEGATIVE NOTE: TILE WILL REQUIRE DISPOSAL AS MASTIC IS ADHERED TO BACK PORTION	60,000 SF*	2% Chrysotile
GI-03A	INTERIOR BASEMENT HALLWAY B53	BLACK MASTIC WHITE 12X12" VCT NEGATIVE NOTE: TILE WILL REQUIRE DISPOSAL AS MASTIC IS ADHERED TO BACK PORTION	INCLUDED ABOVE	3% Chrysotile
HISTORICAL UK DATA	INTERIOR 1 ST FLOOR ROOM 108	BLACK GLUE DOTS ALL BROWN GLUE DOTS SAMPLED HISTORICALLY & AS PART OF THIS INSPECTION WERE NEGATIVE	UNKNOWN	5% Chrysotile
HISTORICAL UK DATA	ROOF COOLING TOWER	INSULATION FILL MATERIAL LIKELY ABATED AS PART OF THE COOLING TOWER RENOVATION PROJECT OCCURRING AROUND 2018	-	55% Chrysotile
HISTORICAL UK DATA	ROOF COOLING TOWER	PIPE INSULATION MATERIAL LIKELY ABATED AS PART OF THE COOLING TOWER RENOVATION PROJECT OCCURRING AROUND 2018	-	30% Amosite
HISTORICAL UK DATA	ROOF COOLING TOWER	MATERIAL FROM WATER FLOW DIVIDER DEVICE MATERIAL LIKELY ABATED AS PART OF THE COOLING TOWER RENOVATION PROJECT OCCURRING AROUND 2018	-	60% Chrysotile
HISTORICAL UK DATA	ROOF PLAZA	BUILT-UP ROOFING PRESENT BELOW THE SOUTHERN BRICKED PAVED PLAZA AREA (SEE FIG. 3B)	5,700 SF*	30-35% Chrysotile
HISTORICAL UK DATA	INTERIOR 3 RD FLOOR BATHROOM 302	BLACK COATING ON CONCRETE CEILING	750 SF*	6% Chrysotile

RED – Considered an ACM as defined by the EPA

LF = Linear Feet SF = Square Feet EA = Each

*ALL QUANTITIES MUST BE FIELD VERIFIED BY THE CONTRACTOR

ASBESTOS SAMPLE LOCATIONS AND RESULTS (CONT.)

SAMPLE #	SAMPLE LOCATION	MATERIAL	APPROX QUANTITY*	ASBESTOS %
HISTORICAL UK DATA	BASEMENT ROOM 38	HARD GRAY MATERIAL FROM WALL PARTITION <i>LIMITED ACCESS INTO THIS AREA (USDA). MATERIAL WAS NOT OBSERVED OR SAMPLED IN ANY OTHER AREAS OF THE SUBJECT PROPERTY</i>	UNKNOWN	40-45% Chrysotile
GI-07A	INTERIOR 3 RD FLOOR ROOM 316	DARK GRAY FLOOR PENETRATION SEALANT <i>PIPE PENETRATIONS</i>	500 EA*	2% Chrysotile
GI-19A	INTERIOR 2 ND FLOOR ROOM/LAB 216D	DARK GRAY INTERIOR VENT HOOD WALL BRACKET	TBD	15% Chrysotile
GI-20A,B	INTERIOR 4 TH FLOOR ROOM/LAB 418	DARK GRAY BEAKER CABINET COUNTERTOP <i>MATERIAL NOT THE SAME AS THE NON-ACM SLATE COUNTERTOPS AND IS A STANDALONE CABINET</i>	10 EA* <i>NOTE: LIMITED ACCESS TO VARIOUS SECURE LABS</i>	10% Chrysotile
GI-21A	INTERIOR 1 ST FLOOR LOBBY 101 @ 108	TAN GYPSUM BOARD MUD <i>GYPSUM BOARD PANELS & TAPE ARE NEGATIVE FOR ACM</i> <i>NOTE: TOTAL AREA INCLUDED TO THE RIGHT IS ESTIMATED TOTAL SQUARE FOOTAGE OF ALL GYPSUM BOARD WALL PANELS (NOT SOLELY MUD)</i>	54,000 SF*	2% Chrysotile
GI-38A	INTERIOR PENTHOUSE ROOM 1002	DARK GRAY PIPE GASKET	50 EA*	30% Chrysotile
-	INTERIOR THROUGHOUT	FIRE DOOR INSULATION	TBD	Assumed

RED – Considered an ACM as defined by the EPA

LF = Linear Feet SF = Square Feet EA = Each

*ALL QUANTITIES MUST BE FIELD VERIFIED BY THE CONTRACTOR

1.6 FINDINGS AND CONCLUSIONS

Chase conducted this ACM inspection in accordance with the scope of services as defined in this report. Our assessment has revealed the following ACM materials:

- Asbestos is present within the black 12x12" VCT floor tile mastic located throughout the interior of the subject property. Historic UK sampling records also indicated the presence of asbestos within the VCT mastic. It should be noted that the mastic is adhered to the back side of the floor tile and therefore should be abated and disposed of as an ACM. All associated floor tile and mastic are in non-friable condition and are considered Category I

non-friable materials. If demolition activities are performed in accordance with the NESHAP regulations, this material is not considered Regulated Asbestos-Containing Material (RACM).

- Historic UK sampling records indicated that the **BLACK** ceiling tile glue dots located within '1st Floor - Room 108' were positive for asbestos (5% Chrysotile). All associated **BLACK** glue dots are in non-friable condition and are considered Category I non-friable materials. If demolition activities are performed in accordance with the NESHAP regulations, this material is not considered Regulated Asbestos-Containing Material (RACM).

Note: All **BROWN** glue dots, sampled historically and as part of this inspection, were negative for asbestos. CEG did not observe or collect any additional black glue dots during the course of the inspection activities.

- Historic UK sampling records indicated that the insulation fill located within the 'Cooling Tower' of the subject property was positive for asbestos (55% Chrysotile). This material was likely abated as part of the Cooling Tower renovation project that was completed around 2018 (per UK maintenance personnel). CEG will inspect the Cooling Tower system during the future roof inspection activities. If this material is present, it would be considered friable and a RACM.
- Historic UK sampling records indicated that the pipe insulation material associated with the 'Cooling Tower' of the subject property was positive for asbestos (30% Amosite). This material was likely abated as part of the Cooling Tower renovation project that was completed around 2018 (per UK maintenance personnel). CEG will inspect the Cooling Tower system during the future roof inspection activities. If this material is present, it would be considered friable and a RACM.
- Historic UK sampling records indicated that a material from the water flow divider device within the 'Cooling Tower' of the subject property was positive for asbestos (60% Chrysotile). This material was likely abated as part of the Cooling Tower renovation project that was completed around 2018 (per UK maintenance personnel). CEG will inspect the Cooling Tower system during the future roof inspection activities. If this material is present, it would likely be considered friable and a RACM.
- Historic UK sampling records indicated that the built-up roofing material, located below the northern portion of the exterior 'Plaza', was positive for asbestos (30-35% Chrysotile). The majority of this material was abated as part of the 'Plaza' renovation project (2014); however, rear and side portions of the 'Plaza' (see Fig. 3B) were not abated. All associated built-up roofing is in non-friable condition and considered a Category I non-friable material. If demolition activities are performed in accordance with the NESHAP regulations, this material is not considered RACM.
- Historic UK sampling records indicated that the black ceiling coating, located on the concrete ceiling (above drop ceiling) of '3rd Floor - Bathroom 302', was positive for asbestos (6% Chrysotile). All associated black ceiling coating is in non-friable condition and considered a Category I non-friable materials. If demolition activities are performed in

accordance with the NESHAP regulations, this material is not considered Regulated Asbestos-Containing Material (RACM).

- Historic UK sampling records indicated that the hard gray material from a wall partition, located within 'Basement - Room 38', was positive for asbestos (40-45% Chrysotile).

Note: Due to the limited access of various USDA basement areas, CEG did not observe or collect any additional samples of said material. CEG will inspect and quantify these areas prior to demolition and report them accordingly to UK.

- Asbestos is present within the dark gray pipe penetration sealant/caulk (concrete ceilings/floors) located throughout the interior of the subject property. All associated pipe penetration sealant/caulk is in non-friable condition and is considered a Category I non-friable material. If demolition activities are performed in accordance with the NESHAP regulations, this material is not considered Regulated Asbestos-Containing Material (RACM).
- Asbestos is present within the dark gray interior vent hood wall bracket material (transite-like) located behind the interior wall panels of the laboratory vent hoods. The associated vent hood wall brackets are in non-friable condition and are considered a Category II non-friable material that has a high probability of becoming friable (crumbled, pulverized, or reduced to powder) by the forces expected to act on the material in the course of demolition and considered a RACM.
- Asbestos is present within the dark gray beaker cabinet countertop located within the 4th floor 'Room/Laboratory 418'. The associated countertop is in non-friable condition and is considered a Category II non-friable material that has a high probability of becoming friable (crumbled, pulverized, or reduced to powder) by the forces expected to act on the material in the course of demolition and considered a RACM.

Note: Due to the limited access into many of the secured laboratories, CEG did not observe or sample any additional cabinet countertops that were comparable to the one sampled within '418'. The quantity included within the above table is based off of a best guess and actual quantities may vary.

- Asbestos was indicated within the tan gypsum board mud located throughout the interior of the subject property. All associated gypsum board mud is in friable condition and considered a RACM.
- Asbestos is present within the insulation of various fire doors (stairwells, mechanical rooms, etc.) located throughout the interior of the subject property. All associated insulating core material is in friable condition and is considered RACM.
- Asbestos is present within the pipe and valve gasketing material located throughout the interior of the subject property. All gasket material is considered a Category I non-friable material.

- Asbestos is assumed present within the insulation of any fire doors throughout the subject property. Due to the non-destructive nature of the sampling activities, access to the interior insulating core was prevented; therefore results are based on our experience with similarly aged structures and our historically positive results. All associated insulating core material is in friable condition and is considered RACM.

1.7 RECOMMENDATIONS

Based upon the results of this asbestos containing materials assessment, CEG recommends the following:

- If concealed ACM is observed during demolition activities, it will be necessary to investigate and collect bulk samples in order to confirm the presence or absence of asbestos content. Should potential ACM(s) be discovered during the demolition activities that have not previously been sampled, all activities that disturb said material(s) shall cease until the suspect material(s) have been sampled.
- Roofing areas/materials should be sampled when the structures becomes vacant in order to protect the integrity of the existing structure and occupants.
- Basement USDA areas should be inspected, sampled, and reported prior to any demolition activities.
- If demolitions to any areas outside of the original project scope are planned, it will be necessary to investigate and collect bulk samples in order to confirm the presence or absence of asbestos content.

2.0 POLYCHLORINATED BIPHENYL (PCB) IN CAULK INSPECTION

2.1 BACKGROUND AND SITE SUMMARY

Chase Environmental Group (CEG), on behalf of the University of Kentucky (UK), has compiled this report following an inspection for Polychlorinated Biphenyl(s) (PCBs) in various caulking materials that may be disturbed during the demolition of the W.P. Garrigus Building (Garrigus) located on the campus of the University of Kentucky (UK). The Garrigus Building, built in the 1970s, is a ten-story structure with a basement and is located at 325 Cooper Drive in Lexington (Fayette County), Kentucky.

The objective of this project was to collect materials to assist in the identification of hazardous, non-liquid PCBs in caulking prior to the proposed demolition of the subject property. A comprehensive list of all PCB samples taken from the structure can be found within [Appendix B](#). This report provides background information, scope-of-work performed, limitations and exceptions, assessment results, and recommendations.

PCBs belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizer in paints, plastic, and rubber products; in pigment, dyes, and carbonless copy paper; and many other industrial applications. PCBs have been demonstrated to cause cancer, as well as a variety of other adverse health effects on the immune system, reproductive system, nervous system, and endocrine system. EPA. (January 31, 2013). Polychlorinated Biphenyls. (Retrieved from <http://www.epa.gov/osw/hazard/tsd/pcbs/pubs/about.htm>)

2.2 LIMITATIONS AND EXCEPTIONS

This assessment pertains directly to those areas observed and sampled at the subject property and is not intended to provide data or information for the entirety of the structures. Only those areas accessible during the site visit, including areas considered “typical” of those conditions and materials found throughout the property, were sampled for laboratory analysis.

None of the work performed hereunder shall constitute or be represented as a legal opinion of any kind or nature but shall be a representation of findings from the site visit. There are no warranties or guarantees, expressed or implied, included or intended by the report, except that it has been prepared in accordance with the current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by professional consultants or firms performing the same or similar service.

Changes in the condition of the buildings may occur with time due to either natural processes or human activities. The findings presented in this report are based on site conditions existing at the time of the investigation.

This report was compiled for the sole use of the UK and their client(s). This report is not intended to be distributed or relied upon by third parties without the written permission of CEG.

2.3 SCOPE OF WORK

PCB samples were collected by Chase Environmental to identify the presence of caulking with a PCB content of greater than or equal to 50 parts per million (PPM). Caulking material containing PCBs with 50 PPM or greater are considered *PCB Bulk Product Waste* and are subject to regulated handling and disposal protocols specified in 40 CFR 761.62. As part of the inspection activities, PCB caulk samples were collected and shipped to Waypoint Analytical in Memphis, Tennessee under chain-of-custody protocols for analysis by Method 8082A from the EPA's SW-846. A comprehensive list of all PCB samples taken from the subject property can be found within [Appendix C](#). Sample location diagrams are included within [Appendix D](#).

2.4 RESULTS

Activities associated with the PCB inspection at the Garrigus Building generated the following positive results. This chart only includes materials with a PCB content of ≥ 50 PPM PCBs. A copy of the laboratory analytical results are included within [Appendix E](#).

PCB CONTAINING MATERIALS

SAMPLE #	LOCATION	MATERIAL	APPROX QUANTITY*	RESULTS (PPM)
PG-02	EXTERIOR 1 ST FLOOR SIDE A	DARK BROWN EXTERIOR DOOR & WINDOW FRAME CAULK @ METAL FRAME & CONCRETE	2,500	295
-	EXTERIOR BASEMENT ENTRY DOORS	GRAY EXTERIOR DOOR FRAME CAULK @ METAL FRAME & CONCRETE <i>DOOR FRAME CAULK IS HOMOGENOUS WITH POSITIVE SAMPLES COLLECTED FROM THE EXTERIOR DOOR FRAMES OF THE AG. NORTH BUILDING</i>	INCLUDED ABOVE	Assumed

*ALL QUANTITIES MUST BE FIELD VERIFIED BY THE CONTRACTOR
LF = LINEAR FEET

2.5 FINDINGS & CONCLUSIONS

CEG has performed this PCB inspection at the W.P. Garrigus Building on the campus of UK in Lexington (Fayette County), Kentucky according to the scope of services as defined in this report. Our assessment has revealed the following materials with PCB concentrations of greater than 50 PPM:

- PCBs were indicated within the exterior 'Dark Brown Door Frame Caulk' located on the 1st floor and within the 'Dark Brown Window Frame Caulk' located on the exterior of floors 1-9 of the subject property.

Note: PCB caulking material is located at all metal door/window frames and concrete substrates.

- PCBs were assumed within the exterior ‘Gray Door Frame Caulk’ located on the basement level of the subject property.

Note: The assumed door frame caulk is homogenous with positive samples collected from the Ag. North Building.

2.6 RECOMMENDATIONS

Based upon the results of this non-liquid PCB assessment, CEG recommends the following:

PCBs are subject to a variety of specific federal, state, and local regulatory requirements. The following summarizes the major regulatory requirements:

- All materials with a non-liquid PCB content of ≥ 50 PPM must be properly removed prior to the demolition of the subject structure that disturbs said material(s). Due to the likelihood of PCBs migrating to adjacent surfaces, any porous substrate in contact with PCB containing caulking should be removed. Abatement should occur in accordance with federal, state, and local regulations.
- All PCB Bulk Product Waste must be disposed of in accordance with 40 CFR 761.62. Transportation of said material must occur in accordance with any and all applicable local, state, and federal regulations.
- The selected contractor must be trained in segregation, characterization, handling, transporting, and disposing of hazardous and non-hazardous materials. All abatement activities should implement procedures to minimize dust. Work areas should be restricted to authorized personnel.
- All contractors and employees should be alerted to the presence and location of the identified PCBs and hazards, in accordance with applicable Occupational and Safety Health Administration (OSHA) regulations. This is the responsibility of the contractor(s).
- If applicable, various regulatory agencies (state/local/federal) must be notified of any abatement prior to conducting said work. The licensed contractor typically submits these notifications
- A standardized specification for abatement should be established for the removal of PCB containing materials identified within this report.
- Should potential PCBs be discovered during demolition activities that have not previously been sampled, all demolition activities which disturb the potential PCBs should cease until the material(s) have been sampled. If PCBs are discovered during demolition activities, appropriate abatement should occur in accordance with state and local regulations.

Implementation of these recommendations will help ensure compliance with regulatory requirements.

3.0 HAZARDOUS-CONTAINING MATERIALS INSPECTION

3.1 BACKGROUND AND SITE SUMMARY

Chase Environmental Group (CEG), on behalf of the University of Kentucky (UK), has compiled this report following an inspection for hazardous/potentially hazardous-containing materials associated with the W.P. Garrigus Building (Garrigus) located on the campus of the University of Kentucky (UK). The Garrigus Building, built in the 1970s, is a ten-story structure with a basement and is located at 325 Cooper Drive in Lexington (Fayette County), Kentucky.

The objective of this investigation was to identify regulated materials that may have an environmental impact to the property or workers during the proposed demolition. This assessment included an inspection for previously unidentified environmental concerns, other than asbestos-containing materials (ACMs) and non-liquid PCBs, that may be disturbed or impact the site during demolition.

3.2 LIMITATIONS AND EXCEPTIONS

This inspection pertains directly to those areas observed within the subject buildings and conclusions and recommendations of this report are based solely upon the conditions present at the site during the sampling period. Only those areas accessible during the site visit, including areas considered ‘typical’ of those conditions and materials found throughout the properties, were observed.

None of the work performed hereunder shall constitute or be represented as a legal opinion of any kind or nature but shall be a representation of findings from the site visit. There are no warranties or guarantees, expressed or implied, included or intended by this report, except that it has been prepared in accordance with the current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by professional consultants or firms performing the same or similar services.

Changes in the condition of buildings may occur with time due to either natural processes or human activities. The findings presented in this report are based on site conditions existing at the time of the investigations.

This report was compiled for the sole use of the University of Kentucky and their client(s). This report is not intended to be distributed or relied upon by third parties without the written permission of CEG.

3.3 SCOPE OF WORK

The purpose of this site investigation was to visually inspect areas of the subject buildings for any regulated and/or potentially hazardous-containing materials/equipment in addition to ACMs & PCBs in Caulk. Additional testing may be deemed necessary if waste characterization is required.

Accessible areas were inspected by CEG personnel for the presence of the following hazardous materials:

- Materials and equipment potentially containing polychlorinated biphenyls (PCBs); including, transformers, capacitors, oil containing circuit breakers, and light ballasts (this does not include sealants or caulks).
- Materials and equipment potentially containing mercury; including, thermostats, thermometers, switches, relays, and high intensity lights.
- Equipment potentially containing radioactive materials; including, exit signs, smoke detectors, and controls.
- Materials and equipment potentially containing used oils; including, HVAC systems and elevators.
- Equipment potentially containing Chlorofluorocarbons (CFCs) and/or Hydrochlorofluorocarbons (HCFCs); including, components associated with the HVAC system and other cooling equipment; and
- Other potentially hazardous materials including spent cleaning solvents, paints, and batteries.

3.4 RESULTS

The investigation yielded the following results:

- Various thermostats, gauges, switches, relays, etc. were found throughout the interior of the subject property. These items may contain mercury.
- Emergency lighting and 'Exit' signs were found throughout the subject property that potentially contain lead-acid battery back-up power supplies and/or small amounts of radioactive material.
- Smoke detectors were found within the subject building that may contain a small amount of radioactive material.
- Refrigerators, freezers, walk-in coolers, HVAC systems, and water fountains were found throughout the interior of the subject property that contain various refrigerants, CFCs, and/or other harmful chemicals.
- Various transformers, switches, and other electrical equipment were found within the subject property that may contain petroleum-based products.
- Various laboratory equipment, solid and liquid chemicals, gas tanks, etc. were found throughout the interior of the subject property. It is not known which equipment and other related inventory will remain following vacancy of the building.

Note: Due to the restricted access into several of the laboratories, CEG was unable to fully evaluate potential hazardous containing materials and/or equipment. Additionally, several laboratory doors contained caution signs for Radioactive Material and/or Biological Hazards. Prior to the start of demolition activities, these areas should be inspected and reported.

- Multiple containers of household and commercial cleaners were found throughout the interior of the subject property.
- Multiple quart and five-gallon containers of paint were found on the interior of the subject property.
- Multiple air compressors were noted within the subject property which may contain small amounts of petroleum-based products.
- Various sized propylene glycol and other HVAC related chemical containers and holding tanks were noted within the Penthouse of the subject property.
- An emergency generator system was observed within the Penthouse and likely contains petroleum and/or other petroleum-based products.
- Elevator systems were noted within the subject property that contain hydraulic fluid and/or other petroleum-based products.
- Compact fluorescent (CFL), high intensity, and/or fluorescent tube lighting were found throughout the interior/exterior of the subject property, that may contain a small amount of Mercury Vapor.

Note: Ballasts, capacitors, and/or switches associated with the aforementioned lighting, may contain petroleum products and/or polychlorinated biphenyls (PCBs).

3.5 CONCLUSIONS AND RECOMMENDATIONS

- Segregation, characterization, removal, and proper disposal of the aforementioned items must occur in accordance with all applicable local, state, and federal regulations. The selected contractor must be trained to segregate, characterize, handle, transport, and dispose of said materials.
- All contractors and employees should be alerted to the presence and locations of the identified and presumed hazards, in accordance with applicable Occupational and Safety Health Administration (OSHA) regulations.
- If applicable, various regulatory agencies (state and local) must be notified of any work prior to conducting said work. The licensed contractor typically submits these notifications.
- Employees who work with hazardous materials should be provided with proper personal protective equipment, as well as the appropriate removal equipment, training, and licensure as applicable.
- All hazardous materials must be disposed of in accordance with the federal, state, and local regulations.
- Removal of hazardous materials should be monitored to ensure that no hazardous material is released into the environment.

- If demolition to any area(s) outside of the University of Kentucky's project scope is planned, it will be necessary to further investigate the areas in order to confirm the presence or absence of hazardous materials.
- If concealed hazardous materials are discovered during the proposed demolition activities that have not previously been identified, all activities that disturb said material(s) shall cease until they have been properly identified, sampled, and/or characterized.

Implementation of these recommendations will help ensure compliance with regulatory requirements.

4.0 SIGNATURES AND QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Prepared by:



1/31/2025

Christopher J. Stovall
Environmental Consultant
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Date



Qualifications: Mr. Stovall serves as one of CEG's main Environmental Supervisors in various local, private, and governmental projects and has more than fifteen (15) years of environmental consulting experience. Mr. Stovall holds a bachelor's degree in Environmental Health Science from Eastern Kentucky University. Mr. Stovall's experiences include: characterization, profiling, coordination, and disposal of hazardous and non-hazardous liquid and solid wastes; site investigations involving the collection of petroleum impacted soil and/or groundwater; asbestos-containing materials (ACM), lead-based paint (LBP), and polychlorinated biphenyls (PCBs) inspection activities, reporting, abatement specifications, abatement oversight, collection of clearance samples; and indoor air quality (IAQ) investigations, mold inspections, and microbial remediation.

5.0 APPENDICES

5.1 Appendix A: Site Location Figure & Selected Site Photographs

5.2 Appendix B: Asbestos License & Certification

5.3 Appendix C: Environmental Sample Logs

- *ACM Sample Log*
- *PCBs Sample Log*

5.4 Appendix D: Sample Location Diagrams

- *ACM Sample Diagram*
- *PCBs Sample Diagram*

5.5 Appendix D: Laboratory Analytical Results

- *ACM Analytical Results*
- *PCBs Analytical Results*

5.0 APPENDICES

5.1 Appendix A: Site Location Figure & Selected Site Photographs

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- *ACM Sample Diagram*
- *PCBs Sample Diagram*

5.5 Appendix E: Laboratory Analytical Results

- *ACM Analytical Results*
- *PCBs Analytical Results*



Pre-Demolition Geotechnical Exploration Report
UK Medical Center Campus Expansion
Lexington, Kentucky
S&ME Project No. 24830041

PREPARED FOR:

HDR, Inc.

1515 Market Street

Suite 2020

Philadelphia, Pennsylvania 19102

PREPARED BY:

S&ME, Inc.

2020 Liberty Road, Suite 105

Lexington, Kentucky 40505

March 10, 2025



March 10, 2025

HDR, Inc.
1515 Market Street
Suite 2020
Philadelphia, PA 19102

Attention: Mr. Daryl Bodewin

Reference: **Pre-Demolition Geotechnical Exploration Report**
UK Medical Center Campus Expansion (Phase I)
Lexington, Kentucky
S&ME Project No. 24830041

Dear Mr. Bodewin:

S&ME, Inc. (S&ME) has completed our geotechnical exploration for the medical center expansion project on the University of Kentucky campus in Lexington, Kentucky. We performed our work in accordance with S&ME Proposal No. 24830041 dated August 19, 2024 and Task Order Number 1 dated October 18, 2024 as authorized by Mr. Kent Bonner with HDR. The purpose of this exploration was to obtain subsurface data at the site and provide geotechnical recommendations for design and construction of the new hospital facility.

This report explains our understanding of the project, documents our findings, and presents our conclusion and engineering recommendations.

Sincerely,

S&ME, Inc.

A handwritten signature in blue ink, appearing to read 'A. Fiehler'.

Andrew M. Fiehler, PE
Sr. Project Engineer
Licensed Kentucky 23,977

A handwritten signature in blue ink, appearing to read 'John C. Lessley'.

John C. Lessley
Vice President/Technical Principal



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- Appendix I – Site Location Plan / Boring Location Plans
- Appendix II – Boring and Sounding Summary / Test Boring Records
- Appendix III – Laboratory Testing Results



1.0 Introduction

S&ME, Inc. (S&ME) has completed our geotechnical exploration for the medical center expansion project on the University of Kentucky campus in Lexington, Kentucky. We performed our work in accordance with S&ME Proposal No. 24830041 dated August 19, 2024 and Task Order Number 1 dated October 18, 2024 as authorized by Mr. Kent Bonner with HDR. The purpose of this exploration was to obtain subsurface data at the site and provide geotechnical recommendations for design and construction of the new hospital facility.

This report explains our understanding of the project, documents our findings, and presents our conclusion and engineering recommendations.

2.0 Project and Site Description

The UK Medical Center project includes the construction of approximately 2,000,000 square feet of floor space distributed between the 17 floors of the bed tower and the 3 floors of the central podium. Figure 1 in Appendix I shows the project site location.

S&ME was provided with multiple plans and drawings of the existing facilities as well as schematic drawings, plans and programming documents for the proposed project including:

New construction plans, drawings, etc.

- ◆ UK Chandler Hospital Expansion– Site Development Plans – Schematic Submission – January 24, 2025
- ◆ UK CHE – Foundation Impact Study - February 4, 2025
- ◆ UK CHE – Overall Basement Level Framing Plan – Schematic Submission – January 24, 2025
- ◆ UK CHE – Overall Ground Level Framing Plan – Schematic Submission – January 24, 2025
- ◆ UK CHE – Overall Rock Topography Plan – Schematic Submission – January 24, 2025
- ◆ Schematic Design/Programming Presentation Documents
- ◆ UK CHE – Site Topographic Survey – August 20, 2024

Existing construction plans, drawings, etc.

- ◆ Agricultural Science Center – Exterior Elevations – December 1, 1961
- ◆ Agricultural Science Center – Seedhouse Foundation and Footing Plan – December 1, 1961
- ◆ Agricultural Science Center – Site Grading Plan – December 1, 1961 (includes bedrock sounding locations and bedrock elevations)
- ◆ Agricultural Science Center – Greenhouse and Headhouse Site Development Plan – July 15, 1961 (includes bedrock sounding locations and bedrock elevations)
- ◆ Parking Structure #1 – Subsurface Investigation Plan – February 21, 1968 (includes boring and bedrock sounding locations and bedrock elevations)
- ◆ Parking Structure #1 – Foundation As-Built Drawings of First Level Framing Plan, Sheet 102 – drawing dated February 21, 1968 / As-Built undated
- ◆ Appendix 2 of Geotechnical Report for the UK Patient Care Facility – Bed Tower by HC Nutting, December 9, 2005 (includes Test Boring Logs, Laboratory Testing Results, etc.)

Pre-Demolition Geotechnical Exploration Report UK Medical Center Campus Expansion (Phase I)

Lexington, Kentucky

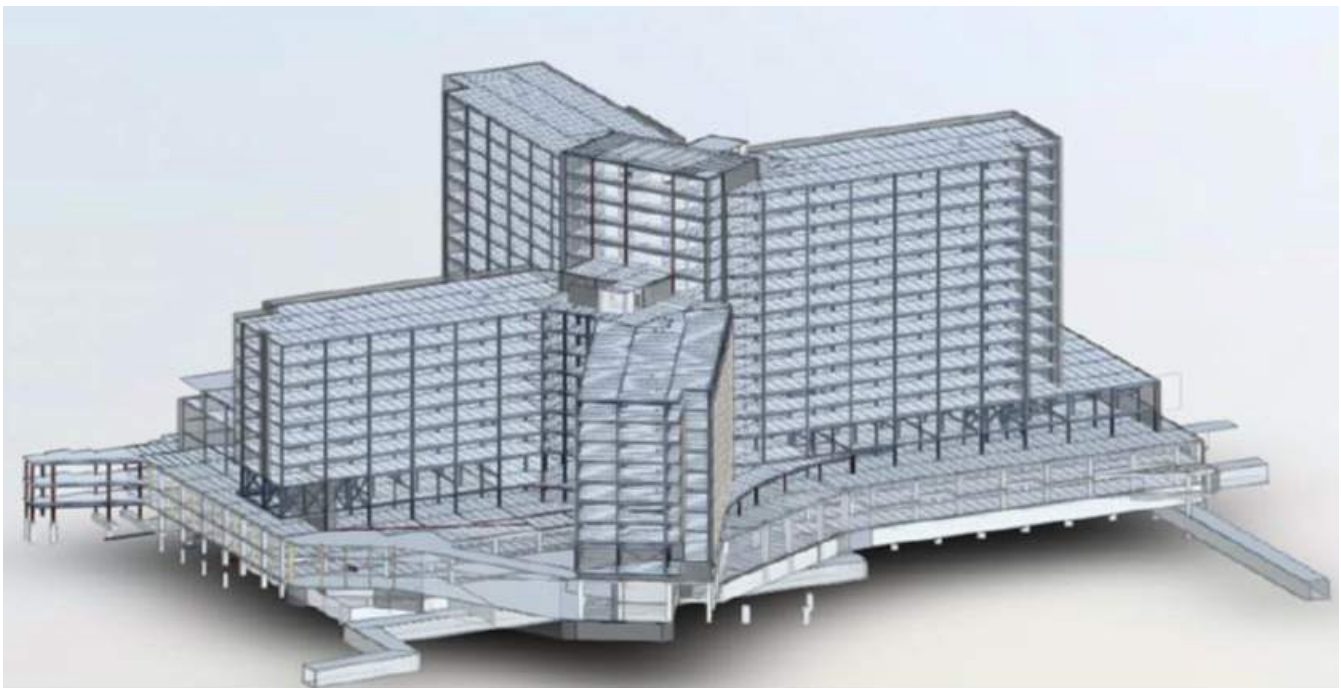
S&ME Project No. 24830041



- ◆ UK Patient Care Facility – Bed Tower, Summary of Geotechnical Data from HC Nutting Company – December 9, 2005 (includes Test Boring Location Plan and cross sections of the borings/site)
- ◆ UK Patient Care Facility – Foundation Plans – July 16, 2017

The new structure will be built of a combination of steel and concrete with masonry veneer and glass exterior. The hospital expansion will have multiple lower floor levels. Project programming documents provided by Brown and Kubican Structural Engineers dated February 12, 2025 note the following finished floor elevations:

- ◆ Level 1 – 993.667 feet
- ◆ Level Ground – 978.33 feet
- ◆ Level Basement – 963.0 feet
- ◆ Level Utility – 956.3 feet



Schematic of the Medical Center Expansion framing from Schematic Design documents

The project site is approximately 20 acres in size and is bounded by South Limestone on the west, Hospital Drive on the north, University Drive on the east, and Cooper Drive on the south.

The project site is currently occupied by 6 existing structures that include the Agricultural Science Center North, the Agricultural Seed House, agricultural greenhouses, the Garrigus Building, the Environmental Quality Management Building, and the University Drive Parking Garage. These structures will be demolished to make way for the new hospital expansion, the new CUP, and parking garage.



Schematic of structures to be demolished from Schematic Design documents

Elevations across the site range from about 1,005 feet at the southeast corner of the site down to about 975 feet along the west side of the site. The ground surface currently consists of a mixture of lawn, asphalt pavement, and concrete pavement/sidewalks. Site grading plans have not yet been finalized, however; we understand that several retaining walls, ranging in height from about 5 feet tall to greater than 12 feet tall, will likely be included in the final configuration. Basement and utility excavations of up to 22 feet are anticipated based on the provided site development plans. New driveways for both emergency vehicles as well as staff and patient traffic are also planned. Initial site development plans note two areas of underground stormwater detention to help control stormwater runoff control.

Also included in the overall project is a new Central Utility Plant (CUP) and a multi-story parking structure; however, these structures will be part of separate design and construction contracts. We have not been provided with development plans of those structures thus this report does not specifically include evaluation of those areas or discussion of design or construction recommendations for those structures.

3.0 Geology

A review of the United States Geologic Survey (USGS) geologic map of the Lexington West Quadrangle (1967) indicates this project site is underlain by the Tanglewood Member of the Lexington Limestone Formation comprised of Ordovician aged deposits. The Tanglewood Member consists of irregularly bedded limestone and shale. Limestone comprises approximately 50 percent of the member and is described as light-gray to medium-

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gray, medium to coarse grained, in smooth to irregular-surfaced beds, medium to thick bedded, fossiliferous. Our recovered rock core classifications agreed with the geologic mapping of the region.

The Lexington Limestone series is prone to Karst features such as differential weathering, solution enlarged soil filled joints and sinkholes. The more common presentations of Karst development in the project area are an erratic top of rock profile due to differential weathering of the limestone and soil filled, solution enlarged joints in the bedrock. Subsurface water that may affect this project is water that infiltrates down through the soil from rainfall and collecting in solution widened joints and fractures and along the soil/rock interface. Alignments of solution enlarged fractures, sinkholes, caverns and depressions commonly indicate fracture zones followed by subsurface water courses.

The Kentucky Geological Survey (KGS) identifies this portion of Lexington as having a “moderate” potential for Karst activity. The Geologic Quadrangle mapping shows several closed depressions within one mile of the property; however, they are mapped in the underlying formations and at lower elevations than the project site. The local region has been heavily developed which may have hidden such surface indications of Karst.

From our experience on campus, we have encountered Karst features that are predominantly along a narrow valley located about one-half mile to the north-northeast of the site that extends from the Woodland Glen dorms, beneath the WT Young Library, beneath the southern end of the Chemistry-Physics building, and on passed the Gatton College of Business. Several other projects where we have performed explorations on either side of this narrow valley have not exhibited signs of Karst development.

We observed some variation in the bedrock surface (auger refusal) in our borings with these elevations ranging from 965.8 feet to 1000.3 feet. Rock coring was performed of the refusal materials from the 16 borings. Recoveries of the coring ranged from 6 percent to 100 percent with an average recovery of about 94 percent. Rock Quality Designations (RQD) of the recovered cores ranged from 0 to 100 percent with an average of about 61 percent. We did not observe obvious signs of the development of Karst features either at the ground surface or in the recovered rock cores.

4.0 EXPLORATION METHODS

The procedures used by S&ME for field and laboratory sampling and testing are in general accordance with ASTM procedures and established engineering practice. Appendix II contains brief descriptions of the procedures used in this exploration.

4.1 Field Exploration

We drilled a total of 16 soil test borings and 26 rock soundings for this project near the requested locations. The final locations were selected to avoid existing utilities or other obstructions. After completion, S&ME measured the coordinates and ground surface elevation at each boring and sounding using survey grade GPS equipment. The measured boring and sounding locations are noted on the Boring Location Plan (Figure 2) included in Appendix I. Boring and sounding coordinates were measured in Kentucky North State Plane Coordinate System. The coordinates and surface elevations are noted in the “Boring and Sounding Summary” table included in Appendix II.

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The RFP included a boring plan with 41 soil test boring locations (initially labeled as B-1 through B-41) plus 31 bedrock soundings (labeled as S-101 through S-131). To help prevent confusion with previous explorations boring numbers were designated as 1000 units higher than the number assigned in the RFP, , thus boring B-2 became B-1002 and boring S-10 became S-1010. Several of the boring and sounding locations were deleted due to access restrictions and several of the requested boring locations were converted to bedrock soundings. Rather than renumber individual borings or soundings, the hole numbers remained as originally assigned but the prefix changed to reflect changes to the hole intent. For example, Boring B-1014 was changed from a rock core boring to a rock sounding and was renumbered S-1014. Thus, boring and sounding numbers were not sequential during the exploration

Mr. Kevin Roberts and Mr. Daniel Draper from our office were on-site during drilling to observe pertinent surface and site features indicative of the site geology, record and log the recovered soil and rock core samples, and direct the drilling and sampling operations.

The borings and soundings were drilled by a track-mounted Diedrich D-50 drill rig using a combination of 6-7/8 inch O.D. hollow stem augers and 4-1/4 inch O.D. solid flight augers. Soil samples were obtained using a split-barrel sampler driven by an automatic hammer system in general accordance with ASTM D1586. We also obtained relatively undisturbed (Shelby) tube samples of the soil using direct push methods..

The borings were advanced to auger refusal. As requested, rock coring was performed in 16 of the soil test borings in general accordance with ASTM D2113. An NX size core barrel is used to produce cylindrical cores 1-7/8 inches in diameter. Core rod RPM and advance rate were monitored during each run to prevent plugging the bit or core blockage or damage. Water without additives was trucked to the site and circulated through the boring to flush cuttings and cool the drill bit during the coring process. Circulating water was released on the surface after completion of coring.

Coring lengths were either 5 feet or 20 feet as requested. Procedures for preserving recovered rock core specimens followed those given for routine care of non-sensitive, non-fragile samples for which only general visual examination will be performed. Steps for routine care are described in ASTM D 5079, *"Standard Practices for Preserving and Transporting Rock Core Samples"*, section 7.5.1. Rock cored in 5 to 10 ft. runs was placed in sleeves or channels in specially constructed cardboard core boxes. Samples extruded from the barrel in longer segments were mechanically broken to permit storage, with breaks marked as such on the core. Empty portions of sleeves or channels were packed with wood or paper to prevent slippage of the core during transport.

The recovered cores were placed in rock core sample boxes and delivered to our laboratory where the geologist and engineer logged and photographed the rock cores. Boxes were transported flat and secured to prevent sliding or vibration. A preliminary field log of each core indicating recovery and general visual description is prepared prior to packing of the core.

The lengths of individual sample runs are intended to divide the rock into sections or more or less similar degrees of weathering, disintegration or intact strength. Since the recovered rock was relatively uniform in appearance in the field, drill "runs" were typically defined by the length of the core barrel during each advance. The stratification lines shown on the boring records represent the approximate boundaries between soil and rock types. The transitions may be more gradual than shown. A general description of our field procedures, a test boring record legend and Test Boring Records are provided in Appendix II of this report. Also included in Appendix II is a summary of the weathered bedrock and auger refusal depths and elevations for the borings.

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4.2 Laboratory Testing

Following sample retrieval, the recovered soil samples were placed in sealed plastic storage bags. The recovered samples were returned to our laboratory where applicable physical tests were performed. These tests are used to help assess the engineering properties of the soil. Procedures for preserving soil samples obtained in the field and transportation of samples to the laboratory generally followed those given in ASTM D 4220, *"Standard Practice for Preserving and Transporting Soil Samples"* for one of four groups of samples described in section 4. Samples used for visual profiling only (Group A) consisted of bulk samples transported in open containers, or jar or bag samples that were not sealed. Samples intended for laboratory physical testing of moisture content or plasticity properties were maintained in sealed glass jars (Group B). Samples for density determination, or shear testing (Group C) were handled in ways to limit disturbance of the natural soil fabric and stratification.

Delivered soil samples were visually classified by an engineer according to the Unified Soil Classification System (ASTM D2487) or the visual-manual method (ASTM D2488). Based on visual classification, the geotechnical engineer assigned certain laboratory tests to confirm visual classification or to determine some basic soil properties. These included:

- ASTM D 2216, *"Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil or Rock by Mass."*
- ASTM D 4318, *"Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils."*
- ASTM D 7263 *"Standard Test Methods for Density (Unit Weight) of Soil Specimens."*

To supplement soil shear strength estimates made on the basis of penetration data, a limited number of unconfined compression tests were performed on representative undisturbed samples of the cohesive residual soils obtained near current surface grade. Undisturbed samples were stored in the vertical position in the laboratory. Samples were extruded from the thin-walled sampler, using a specially constructed extruder, in the same direction of travel as the sample entered the tube during sampling. The unconfined compressive strength was determined on selected undisturbed samples generally following the procedures described by ASTM D 2166, *"Standard Test Method for Unconfined Compressive Strength of Cohesive Soil."* Representative portions of each sample were split from the extruded material and prepared using the procedures described in Section 6.2 of ASTM D 2166. The ends of the specimen were carved by hand and trimmed as necessary to provide a surface perpendicular to the specimen's long axis, but the ends were not capped.

The prepared samples were placed in a compressive testing machine and the specimen compressed in the platen at a rate of 1 to 2 percent strain per minute. Deformation and loading of the sample were recorded at regular intervals until the load values began to decrease with increasing axial strain, or a total strain of 15 percent of the original sample length was attained. Sample stress was corrected at each load increment for the change in cross sectional area produced by deformation of the sample using the formula in sections 8.2 and 8.3 of ASTM D 2166.

Rock strength was qualitatively estimated based on examination of the recovered core samples and supplemented by compressive strength testing of recovered specimens. The geotechnical engineer examined the recovered rock in each core run to visually assess the properties of the material in terms of apparent hardness, continuity, quality, and degree of weathering. Terminology used in relating rock mass behavior based on the recovered rock core specimens consider core "recovery" - the ratio of the sample length recovered in the core barrel to the total length of the core run, expressed as a percent, and RQD. Rock Quality Designation is described by ASTM D 6032,



"Standard Test Method for Determining Rock Quality Designation (RQD) of Rock Core." The RQD is the percentage of the core run consisting of moderately hard or harder NX-sized rock core recovered in segments 4 inches long or longer. When properly interpreted by a qualified professional, the RQD value provides a basis for preliminary design decisions involving foundations or excavation in rock.

Only those pieces of rock formed by natural joints, bedding planes, shear zones, or cleavage planes that result in surfaces of separation were considered for computation of recovery or RQD. Breaks in the core due to drilling or handling were not considered. Pieces were considered intact when they appeared to have been bonded together prior to coring and broken surfaces consisted of fresh rock. Where a surface could not be determined as either a natural or mechanical break, it was considered a natural break.

Samples were selected from the recovered core at representative locations across the site and at differential potential bearing depths to attempt to capture variations in weathering or hardness. The unconfined compressive strength of the rock core specimens was determined generally following the procedures described in ASTM D 7012 Method C, "Standard Test Method for Unconfined Compressive Strength of Intact Rock Core Specimens." Selected recovered samples of intact rock core were cut to length and the ends machined flat. Specimens were then placed in a loading frame and axial load continuously applied until peak load and failure were obtained.

Laboratory test results are noted on the individual boring logs in Appendix II. The laboratory test results are also included in Appendix III.

4.3 Piezometer Installation

Water level readings taken during boring operations do not provide information on long term fluctuations of the water table. In several of the borings, a temporary observation well was constructed by inserting PVC casing to the indicated depth. A slotted PVC well screen was attached to the bottom of the PVC pipe to allow subsurface water to enter the well.

Procedures for measurement of liquid levels in open boreholes generally followed those described in ASTM D 4750, *"Standard Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well)"* using the weighted tape method. For each measurement interval, a weighted measuring tape was slowly lowered into each borehole until the liquid surface was penetrated by the weighted end. The reading on the tape was recorded at a reference point on the surface and compared to the reading at the demarcation of the wetted and unwetted portions of the tape. The difference between the two readings was recorded as the depth of the liquid surface below the reference point. Measurements made by this method were then repeated until approximately consistent values were obtained.

5.0 SUBSURFACE CONDITIONS

As mentioned above, we drilled a total of 16 soil test borings and 23 rock soundings at the project site.

Surface Materials

Three of our borings were advanced through existing asphalt pavements and encountered 7 to 11 inches of asphalt overlying 4 to 8 inches of gravel base. The 33 borings and soundings advanced in lawn areas encountered



3 to 5 inches of topsoil. Three borings were advanced through 3 to 5 inches of aggregate near an active construction site where the previous pavement had been removed.

Fill

Materials identified as “fill” are called out in only one boring. In B-1007 crushed limestone fill is present to refusal to drilling at a depth of about 18 feet. There is substantial buried infrastructure in the site area, with retaining walls and buried utilities routinely placed with dumped or spoiled materials as backfill. The terms “dumped” or “spoiled” are used in this context to describe soils that have been placed without apparent engineering control of either their composition or moisture content, or that appear to have been placed without compactive effort being applied or pushed out as a mass rather than placed systematically in thin lifts.

Thickness of fill elsewhere on the site or at locations between borings likely varies substantially from the thickness noted at boring B-1007. Small discrete samples obtained in B-1007 did not appear to contain deleterious debris or organic material, but we cannot make a definite judgment as to the composition of this material without exposing a larger area. Blow counts obtained in the fill interval of this boring were not consistent with well placed gravel or stone called out on the sample descriptions. The fill mass may include large organics, buried debris, or voids which could not be observed during our exploration. These soils are considered unreliable for structural support due to variable consistency, apparent strength, and compressibility.

Residuum

Beneath the surficial materials we encountered residuum generally consisting of low plasticity (lean) clay (CL) overlying high plasticity (fat) clay (CH). These soils form part of the weathered profile of the Ordovician age Lexington Limestone Formation, well consolidated fine-grained sediments indicated on local geologic maps. These soils extended to refusal to the soil auger at depths ranging from less than 1 foot to almost 19 feet with an average depth of just over 8 feet. Within the basement footprint, the majority of the soils will be excavated and removed from the site. However, these soils will form the majority of the side slopes of excavations made to construct basement areas. They may also form the immediate bearing surface for footings supporting light duty structures outside of basement areas, pavements and sidewalks.

Standard penetration resistance N-values ranged from 5 to over 28 blows per foot within the soil horizons. Four samples encountered sampler refusal, which is denoted as 50 blows over the measured penetration, at the soil/bedrock transition zone (shown on the boring logs as 50/1”, for example). Laboratory unconfined compressive strength testing of representative undisturbed samples of the cohesive soils ranged from 1500 psf to 4300 psf. Values obtained are consistent with generally firm to very stiff soil consistency. The table below summarizes the natural moisture content, Liquid Limit, and Plasticity Indices of selected representative soil samples.

Refusal to Drilling

Beneath the residual soils the borings penetrated weathered bedrock, generally less than one foot thick, before encountering auger refusal. We note that refusal of our drilling tools in this layer may have resulted from the presence of lenses or seams of cemented or hard soils, boulders or ledges of weathered or partially weathered rock, or continuous, relatively hard competent rock.



The term "refusal" in the context of this report refers to the inability of the drill rig employed on the project to further advance the boring with the type of soil auger and bit in use. Practical refusal of the tools may take the form of binding or seizing of the bit, "walking off" of the drill string, or liftoff of the rig itself when the operator attempts to crowd the Kelly bar.

The refusal materials resisted penetration by soil augers and were sampled by diamond rock core methods at each of the 16 soil test boring locations. The recovered core appeared fairly uniform, thus we did not attempt to separate the recovered core into separate stratigraphic horizons based on observed changes in formation or material type of the recovered rock.

We observed some variation in the bedrock surface (auger refusal) in our borings with these elevations ranging from 965.8 feet to 1000.3 feet. Rock coring was performed of the refusal materials from the 16 borings. Core recoveries of individual runs ranged from 6 percent to 100 percent with an average recovery of about 94 percent. Rock Quality Designations (RQD) of the recovered cores ranged from 0 to 100 percent with an average of about 61 percent.

In karst terrain, sinkholes occur primarily due to differential weathering of the bedrock and "flushing" or "raveling" of overburden soils into the cavities in the bedrock. The loss of solids creates a cavity or "dome" in the overburden. Growth of the dome over time or excavation over the dome can create a condition in which rapid, local subsidence or collapse of the roof of the dome occurs. We did not observe obvious signs of flushing or raveling of overburden into the rock that would suggest development of karst features in the borings.

5.1 Comparison of Boring Refusal to Existing and As-Built Foundation Data

S&ME was provided as-built building plans and other construction data pertinent to the project for inclusion in our evaluation process. S&ME can typically not independently verify the accuracy of as-built data. However, we attempted a brief comparison between as-built footing elevations and top of rock elevations revealed by nearby S&ME borings completed as part of the current exploration. A mathematical algorithm (Student's t-test) was used to compare S&ME boring and sounding top of rock elevations to previous bedrock elevations as indicated by footing or drilled shafts elevations, where borings and footings occurred in relatively close proximity. Mean bedrock elevation and standard deviations of bedrock elevation were computed for paired locations where S&ME borings or soundings were situated relatively close proximity to footings or drilled shafts. Within a statistical degree of significance, there appears no reason to conclude either differences between the variances or differences between the means of the two sample populations are so great as to be unlikely to have occurred from chance if the two populations were equal.

As requested, we developed a bedrock surface map of the site and portions of the surrounding area. Since there appeared to be reasonable statistical similarity between S&ME and previous data, the bedrock surface maps were constructed combining the data obtained from our exploration as well as geotechnical explorations and as-built drawings of the existing buildings provided by the design team. From our exploration and the mentioned supplied information, a total of 518 individual bedrock surface elevation points were obtained for development of the bedrock surface model. A digital point file and CAD drawing has already been provided to the design team. Reproductions of digital files depicting as built and existing bedrock surface and including current boring and sounding refusal depths are attached as figures 2 and 3 in Appendix I. We have also provided digital versions of the bedrock mapping to the project team.



5.2 Composition and Quality of Recovered Rock Core

The recovered rock core samples consisted of moderately hard thinly laminated fossiliferous limestone with typically limited (<10 percent) calcareous shale. Rock continuity within the core runs was gauged to be fairly continuous to continuous based on an average recovery of 90 to 100 percent.

Rock quality as assessed using the Rock Quality Designation (RQD) value ranged from 0 to 100 percent with an average of 72 percent measured in runs below about two feet below refusal. RQD in the upper two feet below refusal, representing a zone of weathering and very poor rock, was more typically 0 to 20 percent. Joints were stained and the rock fabric discolored up to one inch from joint surfaces. Weathering of the rock mass was judged to be moderate, with weathering evident in the first run of most borings. There was discoloration and staining of the rock fabric in the initial core run as well as numerous clay partings for the first one to two feet of the recovered cores. Rock quality was substantially better with increased penetration into the rock. Weathering was moderate to slight with rock fabric fresh and some slight staining of joints. Average RQD below 2 feet penetration into rock was more typical of fair to good quality rock.

Selected recovered samples of intact rock were cut to length and the ends machined flat. Specimens were compressed in a loading frame and axial load continuously applied until peak load and failure were obtained. Samples were soaked prior to testing. Twenty three representative rock core samples were subjected to unconfined compressive strength testing which indicated strengths ranging from 7,335 psi to 23,328 psi with an average unconfined compressive strength of 11,965 psi. Mean plus or minus one standard deviation about the mean was 11,965 psi +/- 4339 psi.

5.3 Ground Water Measurements

Borings and soundings were dry upon completion of soil augering and prior to set up for coring. To evaluate the groundwater conditions at the site, we installed piezometers in five of the core holes and monitored the groundwater elevations periodically for 12 weeks between November 11, 2024 and January 30, 2025. After one to three weeks, the water levels stabilized near the observed bedrock surface elevation. The table below summarizes the near static water level measurements.

Seasonal and periodic variations in precipitation can affect the observed water level conditions. Perched water is often encountered near the soil/bedrock transition and should not be considered the static groundwater table which is encountered at much greater depths in central Kentucky.

Table 5.3 – Periodic Groundwater Level Readings

Boring Number	Surface Elev. (ft)	Bedrock Elev. (ft)	Water Elev. 11/11/24	Water Elev. 12/12/24	Water Elev. 12/19/25	Water Elev. 1/2/25	Water Elev. (ft) 1/30/2025
B-1002	980.2	967.8	974.4	968.7	969.1	969.1	968.4
B-1007	984.4	965.8	965.4	965.2	965.2	965.2	965.1
B-1016	980.9	970.0	969.9	968.5	968.5	968.5	968.5
B-1017	981.4	975.0	970.9	970.8	971.0	971.0	970.8
B-1025	987.9	978.6	964.2	968.2	968.1	968.1	968.2



6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 General Discussion

Our evaluation and the following discussions and recommendations are based upon a finished first floor elevation (FFE) of 993.67 feet, a ground level FFE elevation of 978.3 feet, a basement FFE elevation of 963 feet, and a utility level FFE elevation of 956.23 feet. We understand that bedrock supported foundations consisting of a combination of spread footings and drilled shafts will be used.

The following sections highlight areas of concern with development of the site and construction of the proposed facilities.

6.1.1 *Existing Fill / Disturbed Ground*

There are six existing structures that are to be demolished prior to and numerous utilities to be relocated prior to beginning construction of the new facility. In our experience, redevelopment of a project site is often more challenging than a virgin site. While identified in only one of the current borings, the new construction will encounter substantial areas of existing fill from previous development and will also take place in ground disturbed by the demolition activities.

Since the foundations will be supported by bedrock, the risk of unacceptable structural settlements is expected to be low provided reasonable precautions are taken to limit disturbance of the bearing soils during demolition work or during foundation excavation.

It has been our experience that undocumented fill soils can change abruptly in composition or consistency over short horizontal distances. Undocumented fills often may contain hidden zones of detrimental materials and unsuitable soils that were not revealed by exploratory borings or test pits. Eliminating these risks typically requires complete removal and replacement of the uncontrolled fill with compacted fill. If the owner elects to leave the fill in place, the risks can be reduced by careful examination of the exposed soils during grading, coupled with spot remediation of areas of unsuitable material encountered during construction.

Outside of proposed basement areas the first floor slab subgrade will bear near the existing surface. We recommend that existing fill or disturbed ground be excavated and replaced with acceptable structural fill to support the first floor slab subgrade. With proper site preparation, we expect that the risk to the floor slab from the existing fill or disturbed ground to be relatively low. As an alternative, first floor areas bearing on existing fills may be framed to span poor fill areas, or a combination of partial undercutting and filling employed to limit loading of these materials. . Additional discussion on site preparation is included in the following sections of the report.

Depending on the final location of the basement, we anticipate that a significant portion of the existing fill will likely be excavated thus greatly reducing the potential impact of the existing fill.

6.1.2 *Building Demolition and Re-Use of Demolition Debris*

Demolition of existing building superstructure, foundations and pavements will generate a significant volume of material potentially available for re-use in construction sitework if processed and handled correctly. S&ME has

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successfully used demolition debris beneath several major projects in central Kentucky, including the Gatton Student Center at the University of Kentucky. If the demolition debris is chosen as a fill material, the demolition and sizing process should be reviewed by the Geotechnical Engineer to insure proper aggregate size and composition. Additional discussion about crushing and material gradation is included in following sections of this report.

6.1.3 *High Plasticity Clay*

The soils encountered during our exploration are typical of soils throughout central Kentucky. The lower clay horizon at this site is a high plasticity clay. Atterberg limits tests of representative Fat Clay samples obtained during this exploration indicate Liquid Limits up to 78 percent with Plasticity Indices up to 45 percent. Soils with plasticity indices greater than 30 percent have a tendency to shrink or swell with changes in moisture content. We anticipate the high plasticity soils will potentially impact the project if they are excavated from the basement area and used as structural fill. If debris and excavated bedrock (shot-rock) are used as fill, we expect a surplus of materials will have to be hauled off-site. Problem materials, such as organic laden or high plasticity clay, can be culled and preferred materials used in their place.

Lightly-loaded structural elements such as slabs-on-grade, sidewalks, pavement areas, and non-load bearing walls are susceptible to damage from shrinking and swelling soils, particularly in areas that have been cut to grade where these soils, if present, would be at very shallow depth. Where these soils are incorporated into structural fills, swell potential can likely be reduced if the soil moisture content is kept near or above the plastic limit. In these cases soil swell is not as likely to occur.

Moisture control during placement of these soils is crucial to the performance of the soil fill. Placing the higher plasticity soils deeper within the fill areas and then capping the fat clay with lean clay or crushed stone may be more economical than wasting the high plasticity/swell-susceptible clay and importing structural soil fill. The swell potential of fat clays is of particular concern, since water may cause the fat clays to swell. Lime treatment of high plasticity clays has been shown to greatly reduce the swell potential. If construction takes place during wet periods of the year, wasting of wet soils may be required since high plasticity clays dry slowly.

6.1.4 *Shallow Bedrock, Bedrock Excavation, and Construction Phasing*

Bedrock is relatively shallow in portions of the site relative to the planned floor elevations. Bedrock excavation will be required to achieve portions of the basement and utility levels (963 feet and 956.3 feet, respectively). Note that unconfined compressive strength tests of the recovered rock cores indicated strengths in excess of 23,000 psi. Since testing only considered a small number of locations, strengths substantially in excess of 23,000 psi may be encountered during excavation. Blasting/excavation contractors should be made aware of the rock strengths during bidding as the measured strengths are higher than typical strengths in most of central Kentucky.

Demolition of the existing buildings will generate a significant volume of material that can be used as structural fill, if processed and handled correctly. We have successfully used debris fill beneath several major projects in central Kentucky, including at the Gatton Student Center at the University of Kentucky. Additional detailed recommendations for processing and placement of debris fill are included in the Site Preparation section below.

We anticipate that the bedrock excavation will create significant volumes of shot-rock. If on-site demolition debris is to be crushed for reuse at the site, crushing of excavated bedrock should also be considered. The rock crusher



will aid in breaking large rock pieces into a smaller, more manageable size to be used as shot rock fill or crushed stone backfill and for screening out the soil fines (depending on particle size requirements). Specific recommendations for fill placement for each of these material types is included in the following sections of this report. Due to the phasing plan, exporting shot-rock from the underground parking structure may be required.

6.1.5 Deep Fills Beneath Portions the Building Pad

Fills of greater than 10 feet in height tend to exhibit self-weight consolidation over time even when properly placed and compacted. Controlling this consolidation is vital to the long-term performance of structures bearing on the fill, especially a grade supported floor slab. Since most of the structure will bear on rock, settlement of soil-bearing portions of the structure will be almost entirely differential relative to these areas. Additional discussion for the deep fill and recommendations to help control the consolidation of the fill are included in the following sections.

6.1.6 Protection of Existing Structures

There are numerous underground utilities that are to remain in place and in service during the demolition process. Care should be taken not to damage these utilities during site excavation. Note that it does not require actual contact with a utility to inflict damage. Excavating into a utility trench and removing the backfill stone, whether intentionally or unintentionally, can cause undermining and loss of support to piping that can lead to damage of the pipe. The site survey notes both piping as well as box culverts and utility tunnels across the site.

Because most existing building structures are rock supported, undermining existing foundations is not expected. If cases arise where new excavation into rock occurs below existing bearing points, those conditions require evaluation to confirm if temporary shoring is required. Existing footings and grade beams will be removed in their entirety.

6.2 Initial Site Preparation

Prior to beginning cut and fill operations, the vegetation, topsoil, tree stumps, and other organic debris should be removed from the proposed construction areas. Outside of the new basement footprint, the resulting holes from rootballs and removed foundations and other underground structures should be backfilled with compacted structural fill to reach subgrade elevation. If processed demolition debris is to be used as fill, the debris should be sorted and staged for crushing. Additional discussion on crushing and use of debris as fill is included in following sections.

It is important that an S&ME representative observes site stripping to assess that adequate (but not excessive) material has been stripped. Previously unexplored or unknown conditions could become evident during these operations. S&ME must judge whether the recommendations in this report should be modified in view of the conditions encountered. Once the initial site preparation is complete, S&ME should be retained to visit the site and assess the exposed grade before fill is placed. Observed soft areas should be remediated at the S&ME engineer's discretion before moving on to subsequent tasks.

Once the initial site demolition and stripping has occurred, we recommend a proofroll of the at-grade areas and areas to receive structural fill. Proofrolling consists of observing a loaded dump truck or scraper traffic over the planned fill area. Areas observed to exhibit excessive rutting and/or deflection should be remediated at the engineer's direction. Areas where planned construction bears at or near the existing site grades may require



stabilizing prior to beginning construction. Either undercutting and backfilling with structural fill or aerating/drying and re-compaction of the soil will likely be required.

To control distress associated with swelling clay the upper three feet of the floor slab subgrade should have a Plasticity Index (PI) of 30 percent or less. The upper horizon of soil across the site classified as Lean Clay with a PI of less than 30 percent. Where fat clay is present within three (3) feet of the building pad subgrade elevation, we recommend undercutting and replacing with lean clay or low plasticity material such as crushed limestone or processed demolition debris. Fat clay can be used as structural fill in deeper fill areas within the building footprint and below the top one foot of asphalt pavement subgrade. If suspect soils are observed during site grading, additional Atterberg Limits testing should be performed.

6.3 Bedrock Excavation

Based on the encountered refusal elevations and the proposed finished basement floor elevation of 986 feet and utility level elevation of 956.3 feet, bedrock excavation in excess of 13 feet below refusal level of the borings will be necessary.

Bedrock excavation will require hard rock removal methods such as trenching or hoe ramming. Blasting of bedrock is not typically permitted on campus; however, given the potential cost implications of mechanical bedrock excavation and the volume and depths required, the University should be consulted. To assist the contractor in determining the appropriate rock removal method, selection of bits or teeth, and the ease or difficulty of rock excavation, S&ME performed unconfined compressive strength tests on selected samples of the recovered limestone cores. Please reference the laboratory test reports in Appendix III of this report for the results of the unconfined compressive strength testing. S&ME offers the following considerations for trenching and blasting:

6.3.1 Trenching

A combination of heavy-duty rock trenching equipment and hoe-ramming may be used to perform the required mass rock excavation or utility installation for this project. If the contractor chooses to perform mass rock removal by trenching, the following items should be considered:

- ◆ Trenching will not require a comprehensive pre-blast survey to be conducted on all structures that have the potential to be impacted by blasting operations.
- ◆ Trenching will reduce the ground vibrations compared to blasting
- ◆ Trenching will offer more control over rock excavation but typically takes longer to perform.
- ◆ Trenching will not require the stoppage of traffic along Polo Club Boulevard or the Interstate while being performed.
- ◆ Dust control measures will need to be implemented during trenching operations.

6.3.2 Bedrock Evaluation

Once the mass excavation has been performed in the basement footprint, we recommend that the exposed bedrock be evaluated by an S&ME engineer to assess the presence of solution features, and provide remediation recommendations, if required. Once the exposed bedrock is observed by an S&ME engineer, construction can continue in accordance with the recommendations presented later in this report.



6.4 Structural Fill Placement

6.4.1 Soil Fill

Structural fill is defined as inorganic natural soil with a maximum particle size of 3 inches and maximum dry density of at least 100 pounds per cubic foot (pcf) when tested by the standard Proctor method (ASTM D698) and a plasticity index (PI) of less than 30 percent. While the lean clay (CL) satisfies the criteria for structural soil fill, the majority of the fat clay (CH) at the site does not meet the plasticity requirements; however, it can be used in deeper fills.

6.4.2 Demolition Debris Fill

To use the demolition debris as fill will require that the final product not be open graded where water can collect and percolate into the ground. It should have at least ten percent passing the #40 sieve along with larger pieces to fill the void spaces. Crush the concrete and excavated bedrock together, and the brick and CMU block together.

Do not mix the brick, CMU block and concrete as the harder concrete will pulverize the softer brick and block into dust. Crush the demolition debris to generate a maximum particle size of 4 inches. Place the crushed debris in 10 to 12 inch thick loose lifts and compact. For quality control, the crushed debris should be tested to evaluate the gradation at the beginning of the crushing process to verify the crusher set-up. Once verified, production crushing can continue. Care should be taken to remove wood, steel, drywall and other deleterious material prior to crushing as separating after crushing is very difficult.

6.4.3 Soil/Shot-Rock Mix

The basement excavation will generate three categories or classes of material: soil, shot-rock and a mixture of soil and shot-rock. Excavated bedrock is similar to shot-rock though excavated bedrock will likely require crushing to achieve material gradations that are advantageous for use on-site.

The mixture of soil and rock is by far the most problematic fill material we encounter. Though used with success on many projects it is difficult to place correctly and must be placed under strict supervision in order to achieve adequate compaction. It has been our experience that a majority of building distress issues are associated with structures constructed on a soil/rock mix that was improperly placed during construction. Our experience is that compaction problems occur when the soil/rock mix is placed using "normal rock placement procedures" (i.e. – thick lifts). If used, the soil/rock mix must be placed in strict accordance with our recommendations. We anticipate that there will be a surplus of suitable fill material for use at the site. Consideration should be given to hauling less than ideal materials, such as soil/shot-rock mix, off-site in favor of more desirable on-site materials.

Placing this material using modified soil fill procedures reduces the potential for problems. The goal is to attain proper compaction of the soil between the shot rock particles. If the mix contains more than 15 percent soil by visual inspection by the Geotechnical Engineer, it should be placed using the modified soil fill procedures described in this paragraph. For the soil/rock mix, the lift thickness should be maintained between 8 and 12 inches and the moisture content of the soil portion should be near the optimum moisture content or slightly above. The maximum particle size should be limited to 12 inches in any one dimension after compactive effort is applied. Larger rock pieces can be used if it can be demonstrated that the compaction process breaks the larger pieces into the specified dimensions. A combination of tracked equipment, heavy rubber-tired vehicles (haul



trucks, scrapers, etc.), and a Caterpillar 815 or larger sheepsfoot compactor are typically adequate for placing this material. If the soil/rock mix will be overlain by soil, the soil/rock mix should be "choked" with smaller rock pieces with some rock fines content to prevent the migration of the soil into the soil/rock mix over time.

Approval of the lift placement and compaction will be determined by a S&ME engineer on the basis of the moisture content of the soil within the matrix, the blend of rock pieces, uniformity of the compactive effort, use of the specified equipment, and the behavior of the fill material under the compactive effort. The goal is to achieve the specified compaction of the soil while minimizing voids and promoting the breakdown of weak point-to-point contact of the rock pieces.

6.4.4 Shot-Rock Fill

Shot-rock fill is defined as clean, durable shot-rock that contains less than 15 percent soil content by visual inspection. The following criteria are recommended for shot-rock fill construction:

- ◆ The subgrade must be free of ponded water and stable prior to and during shot-rock fill placement.
- ◆ In areas where soil will be placed over shot-rock fill, the shot-rock fill should be covered with a non-woven geotextile filter fabric, in order to reduce the potential for the migration of soil into the underlying shot-rock. Structural soil fill criteria and placement recommendations are outlined above. The shot-rock fill should also contain filter fabric covered, perforated pipes (4-inch diameter) at the downhill portion of the shot-rock fill where it meets the soil, to inhibit water from building up within the shot rock fill matrix. The drainage pipe should be outfitted with a headwall at the outlet end and should drain to daylight away from the construction area. Consider the use of a channel lined ditch at the end of the headwall to reduce erosion.
- ◆ Shot-rock fill may be used up to the design subgrade elevation in pavement areas. If shot-rock fill is used, we recommend that it be "choked off" with a thin (3 to 4-inch thick) layer of dense graded aggregate (DGA) (or similar) prior to constructing the pavement section. Limit the maximum particle size to 12 inches in any one dimension.
- ◆ Shot-rock should have adequate fines to effectively "choke" the larger rock pieces by filling the voids or open spaces. The larger rock pieces should lie flat and not overlap each other. The percentage of fines in the fill should be limited to a maximum of 15 percent as determined by visual inspection by the Geotechnical Engineer.
- ◆ Place the clean shot-rock fill in maximum 12 to 18-inch thick lifts. The actual lift thickness will vary as the particle size and soil content varies.
- ◆ Adequate compaction of shot-rock fill normally requires six to eight passes of heavy construction equipment on the fill surface. Typically, the equipment used consists of bulldozers and dump trucks. The geotechnical engineer should evaluate the suitability of the proposed compaction equipment and techniques. Approval of the lift placement and compaction will be determined by a S&ME engineer or geotechnician.

Either shot-rock or excavated limestone bedrock can be crushed, and possibly screened, to create gradations suitable for use in different locations around the project site.

6.4.5 Fill Placement

Whether the fill consists of clean soil, crushed and processed debris, or crushed limestone, testing of the fill is imperative – both before placement to determine the fills adequacy for use and during placement to verify adequate compactive effort has been applied.



Additional Standard Proctor testing, Atterberg limits testing and/or grain size distribution testing of fill soils should be performed by S&ME for compliance with the project specifications before used as fill material. If soils are imported to the site, we recommend the soils be tested for conformance with the project specifications before being transported to the site. Please realize laboratory conformance testing usually takes three to four business days to complete; therefore, the Contractor should plan accordingly.

Structural fill placement should occur in relatively thin (6 to 8-inch) layers and be compacted to at least 98 percent of the standard Proctor maximum dry density beneath the foundation and 95 percent of the standard Proctor maximum dry density in pavement areas. For fills greater than 10 feet in height, we recommend at least 100 percent of the standard Proctor maximum dry density. The moisture content of the fill should be maintained within 2 percent of the soil's optimum moisture content even though compaction may be achieved at moisture contents outside the specified range.

The upper three feet of structural fill beneath building pads, the last 20 feet of sidewalks connecting to building entrances, and concrete pavements should consist of lean clay soils with a plasticity index less than 30 percent, KYDOT Dense Graded Aggregate (DGA), quarry screenings, or processed debris. Do not use fat clay with a PI of greater than 30 percent as fill within three feet of subgrade beneath the building, sidewalks connecting to entrances, and concrete pavements, as the expansive properties of the fat clay may result in unwanted swell and distress to lightly loaded structural elements such as sidewalks, pavements, etc. Excavated fat clay should be used in greenspace or non-structural areas that are not planned for future development or in deep fill areas.

In-place density testing must be performed on structural fill as a check that the recommended compaction criteria have been achieved. This allows our project engineer to evaluate the quality of the fill construction and assess that the design criteria is being achieved in the field. We further recommend these tests be performed on a full-time basis by S&ME. The testing frequency for density tests performed on a full-time basis can be determined by our personnel based on the area to be tested, the grading equipment used, and construction schedule. Tests should be performed at vertical intervals of 8-inches or less (the recommended lift thickness) as the fill is being placed.

6.5 Foundation Recommendations

S&ME recommends the foundations for the hospital expansion building extend through the soil and weathered bedrock to bear on intact bedrock. Depending on bearing elevation and location within the structure, foundations may consist either of shallow rock bearing footings or drilled shafts extending into rock. We recommend use of an allowable bedrock bearing pressure to **100 ksf** (kips per square foot) to size foundations bearing on intact, relatively unweathered limestone bedrock similar to recovered materials in the rock core borings. For drilled shafts or shallow foundations bearing on intact bedrock, we anticipate both total and differential settlements of approximately 1/4 of an inch or less, not including elastic compression of the foundations.

For foundations resisting uplift forces and relying on resistance of the concrete to bedrock bond to do so, they should be socketed into bedrock using an allowable net uplift design value of 5,000 psf for the concrete to bedrock bond zone. The weathered bedrock zone should be ignored when measuring the rock socket for uplift resistance.

We expect a combination of end bearing drilled shafts and spread footings bearing on bedrock will be used. The following sections include more detailed recommendations for each of the anticipated foundation types.



We anticipate that greater end-bearing and side resistance capacities are achievable; however, load testing should be performed to measure the potential capacities. Based on load testing performed of the UK Parking Garage #7, we anticipate that allowable capacities may be as great as two to three times greater than the above recommended allowable capacities.

6.5.1 Drilled Shaft Design and Construction Considerations

For drilled shafts we recommend a minimum rock socket of 12-inches into intact bedrock to penetrate through weathered bedrock. Additionally, a 25 percent increase in the allowable axial unit end bearing pressure may be used for short term (transient) load increases. At that magnitude of transient increase, deflections will be within the elastic response zone of the rock and will not result in permanent deflection. S&ME recommends that increases in design values for short term loadings due to wind and seismic loads be in accordance with the Kentucky Building Code or other applicable Code. For uplift resistance, an allowable unit side resistance for the unweathered limestone of 5,000 psf can be used (assuming 4,000 psi concrete for the drilled shafts).

The following construction considerations are recommended for drilled shaft construction:

- ◆ Clean the foundation bearing area so it is nearly level or suitably benched and is free of ponded water or loose material.
- ◆ For shafts that require side resistance, clean the socket "face" prior to concrete placement. Cleaning will require hand cleaning or washing if a mud smear forms on the face of the rock. The geotechnical engineer should approve the rock socket surface prior to concrete placement.
- ◆ Provide a minimum drilled shaft diameter of 30 inches to reasonably enter the drilled shaft excavation for cleaning, bottom preparation, and inspection.
- ◆ Make provisions for groundwater removal from the drilled shaft excavation after rainfall events. Subsurface water often occurs along the soil/rock interface for several days after rain. If water is flowing into the drilled shaft at less than 20 gallons per minute, pumps may be used to maintain less than 2 inches of water in the drilled shaft during cleaning and inspection. After approval of the bearing surface, the pumps should be pulled and concreting commenced immediately. If more than 20 gallons per minute are flowing into the drilled shaft, the water level should be allowed to stabilize before attempting to place the concrete. For this condition, concrete placement should be accomplished using a tremie pipe or concrete pumping equipment.
- ◆ Specify a concrete slump of 7 to 9 inches for the drilled shaft construction. This slump is recommended to fill irregularities along the sides and bottom of the drilled shaft, displace water as it is placed, and permit placement of reinforcing cages into the fluid concrete.
- ◆ Retain S&ME personnel to observe foundation excavations after the bottom of the hole is leveled, cleaned of any mud or extraneous material, and de-watered.
- ◆ Install temporary (if no voids greater than 6 inches are encountered) or permanent (if voids greater than 6 inches are encountered) protective steel casing or Sonotube to prevent side wall collapse, prevent excessive mud and water intrusion, and to allow workers to clean and inspect the drilled shaft.
- ◆ Where temporary casing is required, the protective steel casing may be extracted as the concrete is placed provided a sufficient head of concrete is maintained inside the steel casing to prevent soil or water intrusion into the newly placed concrete.
- ◆ Direct the concrete placement into the drilled shaft through a centering chute or tremie to reduce side flow or segregation.

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6.5.2 *Drilled Shaft Rock Excavations*

Our experience indicates general drilled shaft construction and delineation of "rock" in the excavation is greatly facilitated if adequate drilling equipment is used. We recommend the use of a drill capable of producing at least 500,000 inch-pounds of torque and 35,000 pounds of downward force. Additionally, we recommend that rock be defined as material which cannot be penetrated by a heavy-duty earth auger with hardened teeth at a rate in excess of 3 inches per minute.

Note that the unconfined compressive strengths for the tested rock cores are relatively high for limestone in central Kentucky. The drilled shaft contractor should review the attached laboratory results when preparing/bidding the project.

6.5.3 *Drilled Shaft Quality Control Requirements*

We recommend that the drilled shaft construction be observed by an S&ME geotechnical engineer or an S&ME, ICC Certified Special Inspector experienced in drilled shaft construction. The observation should address the following items:

- ◆ Top location within tolerances
- ◆ Correct plan dimensions
- ◆ Plumbness within tolerances
- ◆ Materials excavated agree with borings
- ◆ Statement of bottom cleanliness
- ◆ Construction procedure

Drilled shafts with diameters of 30-inches or greater are large enough to allow a down-hole inspection of the bearing conditions. S&ME will assess the rock condition during construction using 2-inch diameter probe holes to evaluate the actual condition at each shaft location. Specifications are typically written to require the contractor to perform at least one probe hole per shaft at his expense and provide access to the base of the shaft for the engineer to examine the bearing materials.

We recommend drilling the probe holes at least 5-feet into the rock-bearing material for all drilled shafts. These probe holes are usually drilled with a pneumatic percussion drill by the Contractor. S&ME will check the probe hole using a hooked-end steel feeler rod to assess the rock continuity and to check for the presence of mud seams or voids. If this check indicates a discontinuity or void in the rock, our Engineer will compute the expected settlement for that shaft using elastic theory. If the calculated settlement exceeds the allowable, our Engineer will require that the drilled shaft be excavated deeper. Additional probe holes may be required by the S&ME Geotechnical Engineer to check foundations supported on marginal material.

6.5.4 *Bedrock Evaluation Alternatives*

There are several alternatives to physically sending a person into the drilled shaft excavation to drill a test hole and another to inspect the test hole. These include pre-coring of the bedrock or using geophysical methods to evaluate the bedrock at individual drilled shaft locations. The geotechnical exploration RFP requested an estimate for pre-coring of each foundation location prior to the start of foundation construction in order to establish the foundation bearing elevation.

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There are numerous benefits to either coring the bedrock at each drilled shaft location or using geophysical testing methods including:

- ◆ Setting the final bearing elevation/depth and shaft lengths prior to finalization of bids resulting in fewer unknowns during bidding or change orders during construction.
- ◆ Fewer delays and/or change orders during construction resulting from having to extend drilled shaft excavations that encounter unsuitable conditions that were not observed during the geotechnical exploration.
- ◆ The reinforcing cages can be constructed off-site since the shaft length is known. We anticipate that the project site will likely be congested. Eliminating an area for constructing rebar cages will help reduce such congestion.
- ◆ Eliminating the need to send workers into the excavation to drill a test hole or inspect the test hole. This is an improvement in jobsite safety as well as efficiency during drilled shaft excavation.

One option for bedrock evaluation is to use conventional rock coring methods to sample the bedrock at each drilled shaft location. This approach has been performed on numerous projects and provides a physical sample of the bedrock that can be measured and analyzed. The engineer can then provide a recommended bearing elevation for the drilled shafts.

Another option for bedrock evaluation is to use optical and acoustic televiewers to observe probe holes drilled into the bedrock. The probe holes need to be at least 3-inches in diameter but can be drilled with air-track equipment (similar to drills used for blasting) which are typically faster and less expensive than a conventional rock core drill. After installing PVC casing in the soil overburden, the televiewers are lowered into the borehole. Optical televiewers utilize recordings from a high resolution CMOS digital image sensor combined with a fisheye lens to provide a continuous digital image. Acoustic televiewers use ultrasound pulses from a rotating sensor to record the amplitude and travel time of the signals reflected at the interface between fluids and the borehole wall. The combination of these televiewers provide direct measurements of the bedrock in-situ including height and depth of voids or seams as well as strike, dip, and aperture of planar features.

Both coring and drilling of the probe holes and use of the geophysical testing can be performed before the drilled shaft contractor mobilizes. Scheduling of either the coring or geophysical televiewers must be included in the project scheduling. The existing buildings will have to be demolished prior to mobilizing the core or probe hole drill. Typically, the building construction starts immediately after demolition. Some amount of time must be allowed after demolition for the drill crew(s) to complete the coring and for analysis of the rock cores to set the bearing elevations. The greater number of drilled shafts that are planned, the greater the amount of time will be required.

Note that either the core holes or probe holes should be drilled nearer the perimeter of the drilled shaft footprint than the center. If the core or probe hole is not dead center of the drilled shaft location, the lead teeth of the drilled shaft rig augers can follow the core/probe hole and drag the shaft off-center or out of plumb.

Even if either of these methods are used, a qualified technician should observe the shaft construction and the six bullet points noted above.



6.5.5 Spread Footing Design and Construction Considerations

We anticipate that foundations in the basement portion of the building will consist of spread footings bearing on bedrock. Where bedrock is near the foundation bearing elevation, over-excavating through the soil and weathered bedrock and backfilling to re-establish the foundation bearing elevation with lean concrete is an acceptable alternative provided the bedrock surface has been observed before backfilling. Foundations should be excavated through overlying materials to bear entirely on acceptable bedrock. We recommend a minimum 28-day compressive strength of 5,000 psi concrete be used for backfilling beneath foundations.

For resistance to lateral or sliding forces of foundations bearing on the limestone bedrock, we recommend a friction factor of 0.7 be used for design. Socketing or keying spread footings into bedrock can also be used to resist lateral forces.

If the spread footings are not pre-cored prior to the start of foundation construction, we recommend that 2-inch diameter probe holes be drilled to assess the continuity of the underlying bedrock. We recommend at least one probe hole be drilled every 25 feet along continuous footings. Additionally, at least one probe hole may be requested for each column footing. Two or more probe holes may be required, at the discretion of the engineer, when the footing sizes exceed 25 square feet. We recommend that the project budget contain a unit price contingency for additional probe hole drilling if additional probe holes are required based on encountered subsurface conditions.

The probe holes should be drilled to a depth of 5 feet into the bedrock-bearing material for all spread footing foundations. These probe holes are usually drilled with a pneumatic percussion drill. The engineering technician should check the probe hole using a hooked-end steel feeler rod to assess the bedrock continuity. If this check indicates a discontinuous or compressible seam in the bedrock, the foundation should be excavated deeper. Additional probe holes may be required by the Geotechnical Engineer to check foundations supported on marginal material.

Since the foundations will bear on bedrock, the frost depth requirement will not apply. We recommend individual spread foundations have a minimum footing width of 24 inches to allow for hand cleaning of footing subgrades disturbed by the excavation process and the placement of reinforcing steel. The reinforcing steel should be clean and dry prior to concrete placement.

6.6 Site Seismic Classification

The current seismic design procedures outlined in the NEHRP (National Earthquake Hazard Reduction Program) guidelines mandate structural design loads to be based on the seismic coefficients of the site. Based on the results of our exploration and the geology of the area, we recommend **a site seismic classification of "B"** for this project site. This classification is further defined in the Kentucky Building Code.

Site specific seismic testing in the form of MASW geophysical testing may allow for use of a higher site seismic classification.



6.7 Basements / Below Grade Walls

Basement walls will be required to resist the lateral earth pressures of the soil and backfill within the Rankine zone. Please note that the following information is only for the design of basement walls and should not be used for the design of any other retaining structures.

The lateral earth pressure coefficients listed below assume the excavation between the wall and the face of the limestone will be backfilled with compacted KYDOT No. 57 crushed stone of sufficient width that a Rankine failure surface could develop within the crushed stone backfill. The Rankine failure surface is defined by a 1H:1V slope projected from the rear base of the wall where it meets the foundation to the proposed finished grade. In areas where the face of the limestone falls within the Rankine failure surface, the lateral earth pressure coefficients will be conservative. The No. 57 crushed stone will also be conducive to draining water from around the basement walls. A geo-synthetic filter fabric should be placed between the crushed stone and the retained soil to help prevent migration of soil into the stone.

Where pavements are near the building, the wall design should also factor in the lateral load imparted by the traffic loads. This is often modeled as a traffic surcharge strip load of 250 psf over the driving lane.

We recommend that the below grade wall design include drainage such as a prefabricated drain board or two feet wide zone of KYDOT No. 57 crushed stone immediately behind the wall. Groundwater measurements in the five installed piezometers indicate free water at or just above the bedrock surface. Excavating the basement into the bedrock will result in the basement being a low point where groundwater is likely to collect. Where possible, exterior perimeter drains should direct water away from the building and into the stormwater collection system. Additional interior water removal systems in the form of sump pumps and collection lines should also be considered.

Some areas of basement walls could employ single-form construction where the wall is backed by bedrock. Where single-form construction is used, a prefabricated drainage board should be installed and connected to the foundation drain system.

The remainder of the material behind the wall will consist of undisturbed residual soil and structural fill. As such, the lateral earth pressures exerted on the wall will predominantly be influenced by soil. We recommend that the KYDOT No. 57 crushed stone include a sock covered, perforated drainage pipe that will allow water to be channeled away from the wall and discharged into a storm sewer or drained to daylight away from the building. The following chart indicates the recommended values associated with stone and clay backfill for the various lateral earth pressure coefficients for horizontal backfill surface. We recommend that the At-Rest coefficient be used for below grade walls that are not free to rotate.

S&ME recommends the At-Rest coefficient be used for the basement wall design. As requested, the following table provides the Active and At-Rest coefficients as well as the corresponding equivalent fluid pressures.



Table 6.7 – Lateral Earth Pressures

Backfill Material	Φ'	Unit Weight	Active (K_a)	Equivalent Active Fluid Pressure (psf)	At-Rest (K_o)	Equivalent At-Rest Fluid Pressure (psf)
KYDOT No. 57 Stone	40°	105 pcf	0.22	20	0.35	35
Soil Backfill	24°	120 pcf	0.42	50	0.59	70

Depending on the limits of the basement and other site constraints, shoring of the basement excavations may be required. Once the building design and site development plans have been completed, additional evaluation of the excavation plan and requirements for shoring should be evaluated. We understand that there are numerous underground utilities both within the building footprint and nearby that will remain in-place and active during construction. Care must be taken when designing tie-backs (if used) to prevent damaging both utilities and the root systems of the trees.

6.8 Floor Slab Recommendations

The planned building will have multiple floor elevations that are grade supported. Based on the observed surface elevations and planned site development, the Ground Level floor slab will be supported by a combination of residual clay and newly placed and compacted fill. We anticipate that a portion of the Ground Level floor slab will also bear on the backfill behind the basement walls. In our experience, floor slabs supported on basement wall backfill have a tendency to settle and crack near the cut/fill transition. Constructing the portion of the slab adjacent to the basement wall to be structurally supported by the basement wall is one method to help reduce the potential for floor cracking. Constructing the entire on-grade floor slabs to actually be entirely structurally supported is also an option; however, doing so is expensive. Compacting the basement wall backfill to 100% of the standard Proctor maximum dry density can help reduce the potential for settlement. This approach is often difficult to achieve in the field during construction.

We recommend the upper three feet of the building pad subgrade consist of low plasticity fill with a plasticity index (PI) of less than 30 percent, crushed limestone, processed construction debris fill, or quarry screenings. Where bedrock excavation is required to achieve the planned basement and utility level floor elevations, we recommend over-excavating the bedrock to allow for a minimum of 2-feet of crushed stone beneath the floor slab. We also recommend consideration be given to removing the soil from beneath the basement floor slab where bedrock excavation is not required. The intent of the over-excavation is to soften the transition where the slab will bear on bedrock to bearing on soil. The crushed stone will also aid in draining water from beneath the floor slab.

We recommend that control joints be placed in the slab around columns and along footing supported walls to reduce cracking due to minor differential settlements. We recommend that ACI 302.1R-96 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION" be followed for design and placement of concrete floor slabs.

Between completion of grading and slab construction, floor slab subgrades are often disturbed by weather, footing and utility line installation, and other construction activities. For this reason, the subgrade should be evaluated by an S&ME engineer immediately prior to constructing the slab.

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7.0 FOLLOW-UP SERVICES

Our services should not end with the submission of this geotechnical report. S&ME should be kept involved throughout the design and construction process to maintain continuity and to assess whether our recommendations are properly interpreted and implemented. To achieve this, we should be retained to review project plans and specifications with the designers to see that our recommendations are fully incorporated. We also should be retained to observe and test the site preparation, foundation excavation, and building construction. If we are not allowed the opportunity to continue our involvement on this project, we cannot be held responsible for the recommendations in this report.

Our familiarity with the site and with the foundation recommendations will make us a valuable part of your construction quality assurance team. In addition, a qualified engineering technician should observe and test all structural concrete and steel. Only experienced, qualified persons trained in geotechnical engineering and familiar with foundation construction should be allowed to evaluate and test foundation excavations. Normally, full-time observations and testing of the site work and foundation installation is appropriate.

8.0 LIMITATIONS OF REPORT

This report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other representation or warranty either express or implied, is made.

We relied on project information given to us to develop our conclusions and recommendations. If project information described in this report is not accurate, or if it changes during project development, we should be notified of the changes so that we can modify our recommendations based on this additional information if necessary.

Our conclusions and recommendations are based on limited data from a field exploration program. Subsurface conditions can vary widely between explored areas. Some variations may not become evident until construction. If conditions are encountered which appear different than those described in our report, we should be notified. This report should not be construed to represent subsurface conditions for the entire site.

Unless specifically noted otherwise, our field exploration program did not include an assessment of regulatory compliance, environmental conditions or pollutants or presence of any biological materials (mold, fungi, bacteria). If there is a concern about these items, other studies should be performed. S&ME can provide a proposal and perform these services if requested.

S&ME should be retained to review the final plans and specifications to confirm that earthwork, foundation, and other recommendations are properly interpreted and implemented. The recommendations in this report are contingent on S&ME's review of final plans and specifications followed by our observation and monitoring of earthwork and foundation construction activities.

For more information on the use and limitations of this report, please read the Geoprofessional Business Association (GBA) document that follows this page.



Important Information About Your Geotechnical Engineering Report

Variations in subsurface conditions can be a principal cause of construction delays, cost overruns and claims. The following information is provided to assist you in understanding and managing the risk of these variations.

Geotechnical Findings Are Professional Opinions

Geotechnical engineers cannot specify material properties as other design engineers do. Geotechnical material properties have a far broader range on a given site than any manufactured construction material, and some geotechnical material properties may change over time because of exposure to air and water, or human activity.

Site exploration identifies subsurface conditions at the time of exploration and only at the points where subsurface tests are performed or samples obtained. Geotechnical engineers review field and laboratory data and then apply their judgment to render professional opinions about site subsurface conditions. Their recommendations rely upon these professional opinions. Variations in the vertical and lateral extent of subsurface materials may be encountered during construction that significantly impact construction schedules, methods and material volumes. While higher levels of subsurface exploration can mitigate the risk of encountering unanticipated subsurface conditions, no level of subsurface exploration can eliminate this risk.

Scope of Geotechnical Services

Professional geotechnical engineering judgment is required to develop a geotechnical exploration scope to obtain information necessary to support design and construction. A number of unique project factors are considered in developing the scope of geotechnical services, such as the exploration objective; the location, type, size and weight of the proposed structure; proposed site grades and improvements; the construction schedule and sequence; and the site geology.

Geotechnical engineers apply their experience with construction methods, subsurface conditions and exploration methods to develop the exploration scope. The scope of each exploration is unique based on available project and site information. Incomplete project information or constraints on the scope of exploration increases the risk of variations in subsurface conditions not being identified and addressed in the geotechnical report.

Services Are Performed for Specific Projects

Because the scope of each geotechnical exploration is unique, each geotechnical report is unique. Subsurface conditions are explored and recommendations are made for a specific project.

Subsurface information and recommendations may not be adequate for other uses. Changes in a proposed structure location, foundation loads, grades, schedule, etc. may require additional geotechnical exploration, analyses, and consultation. The geotechnical engineer should be consulted to determine if additional services are required in response to changes in proposed construction, location, loads, grades, schedule, etc.

Geo-Environmental Issues

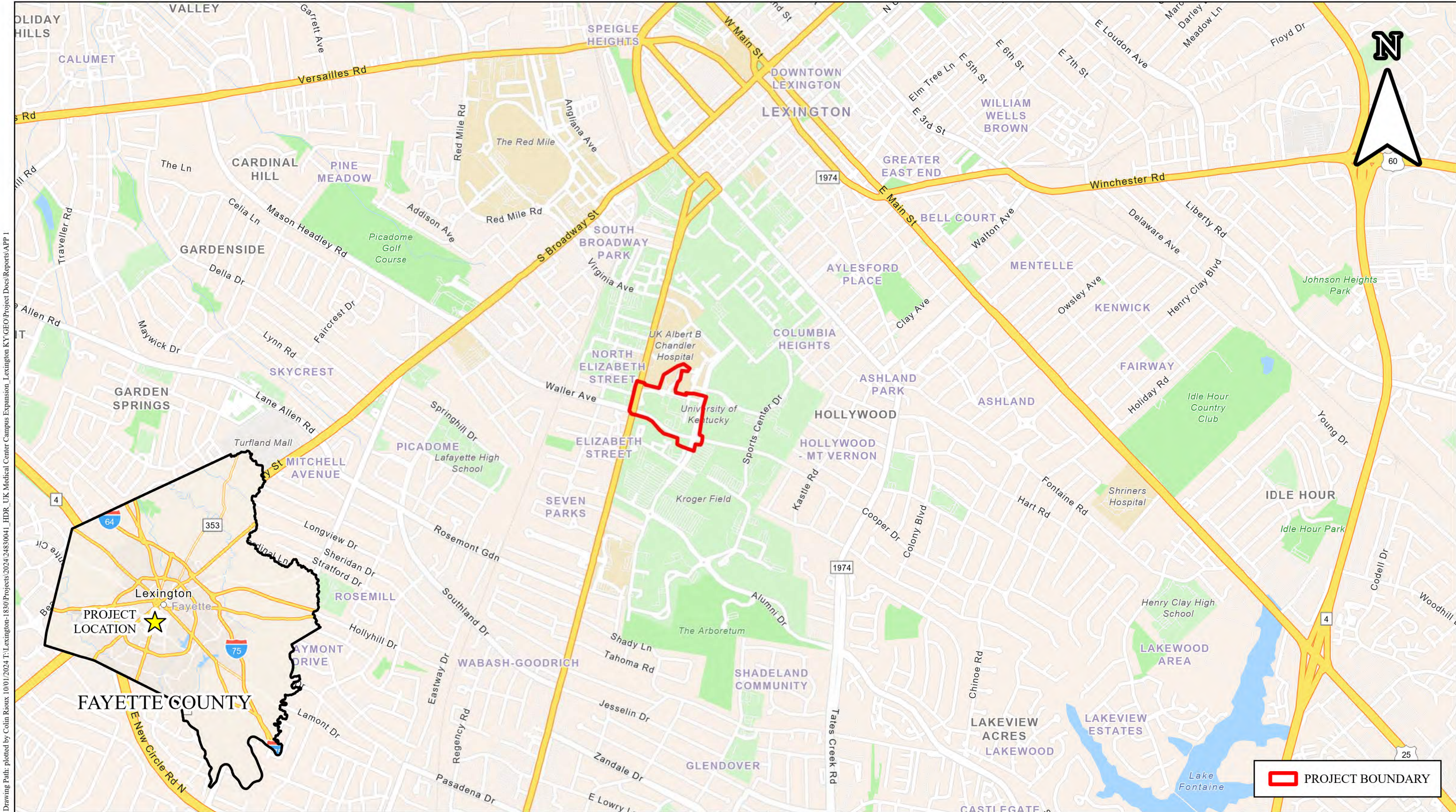
The equipment, techniques, and personnel used to perform a geo-environmental study differ significantly from those used for a geotechnical exploration. Indications of environmental contamination may be encountered incidental to performance of a geotechnical exploration but go unrecognized. Determination of the presence, type or extent of environmental contamination is beyond the scope of a geotechnical exploration.

Geotechnical Recommendations Are Not Final

Recommendations are developed based on the geotechnical engineer's understanding of the proposed construction and professional opinion of site subsurface conditions. Observations and tests must be performed during construction to confirm subsurface conditions exposed by construction excavations are consistent with those assumed in development of recommendations. It is advisable to retain the geotechnical engineer that performed the exploration and developed the geotechnical recommendations to conduct tests and observations during construction. This may reduce the risk that variations in subsurface conditions will not be addressed as recommended in the geotechnical report.



Appendix I – Site Location Plan / Boring Location Plan / Bedrock Surface Map



Drawing Path: plotted by Colin Rioux 10/01/2024 T:\Lexington-1830\Projects\2024\24830041_HDK_UK Medical Center Campus Expansion_Lexington KY\GEO\Project Docs\Reports\APP 1



REFERENCE: ESRI, TOMTOM, GARMIN, SAFEGRAPH, FAO, METI/ NASA, USGS, EPA, NPS, USFWS, KYFROMABOVE, & KHA
GIS BASE LAYERS WERE OBTAINED FROM ESRI, TOMTOM, GARMIN, SAFEGRAPH, FAO, METI/NASA, USGS, EPA, NPS, KYFROMABOVE, KHA AND USFWS. THIS EXHIBIT IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

PROJECT LOCATION PLAN
UNIVERSITY OF KENTUCKY
PROPOSED MEDICAL CENTER EXPANSION
LEXINGTON, FAYETTE COUNTY, KY



DATE
10/01/2024

PROJECT NUMBER
24830041

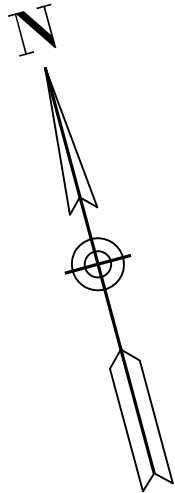
SCALE
1 IN = 2,000 FT

FIGURE NUMBER:
1

FILE NAME: \\EGONTEDRIVE\OPS\LEXINGTON\1830\PROJECTS\2024\24830041_HDR_UK_MEDICAL_CENTER_CAMPUS_EXPANSION\FIG2_SME_BORINGS.DGN

SME BORING LOCATION

SME SOUNDING LOCATION

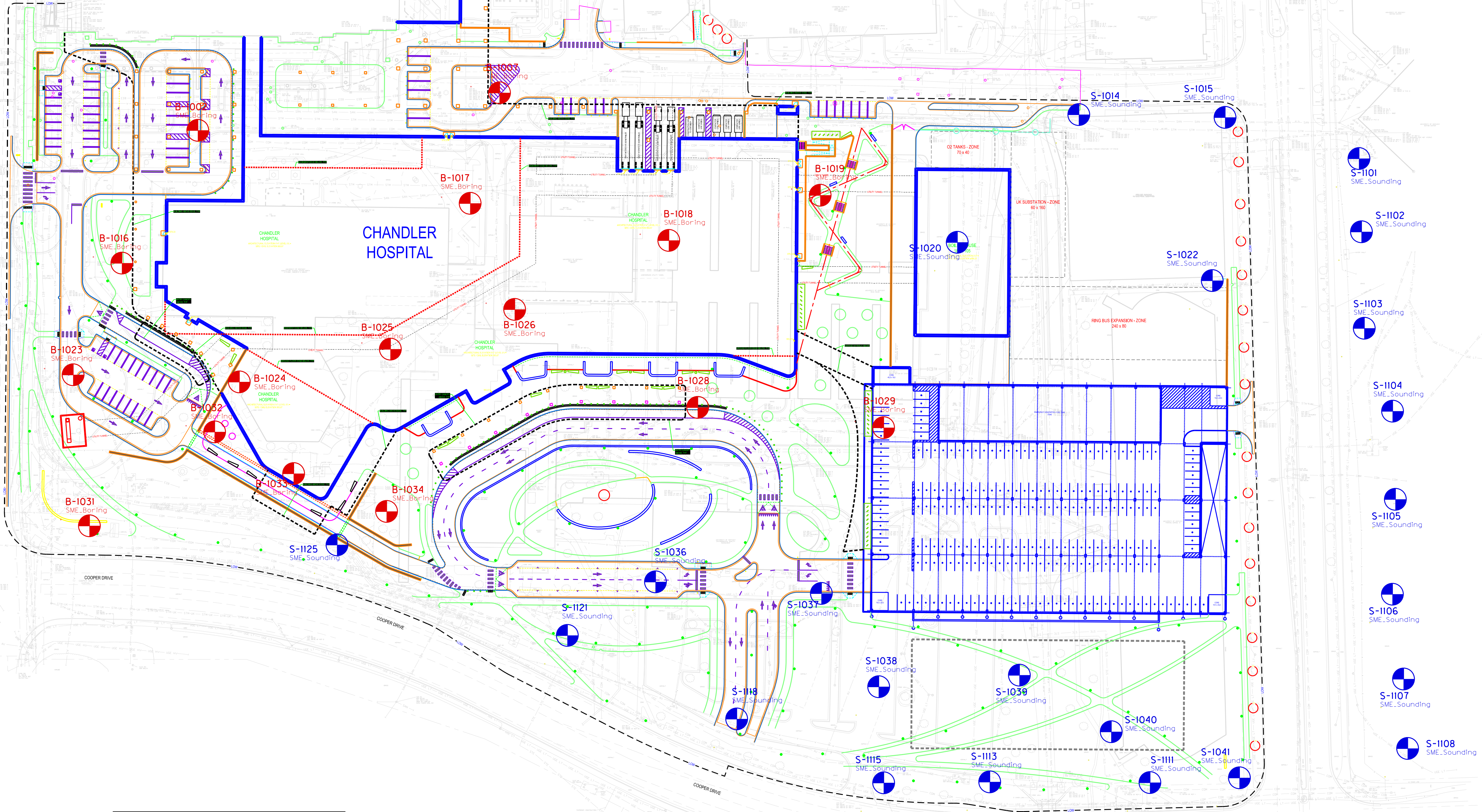


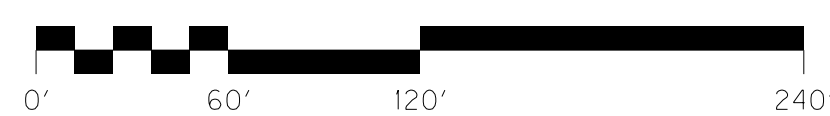
2020 LIBERTY ROAD, Ste 105
LEXINGTON, KY 40505
(859) 293-5518

UNIVERSITY OF KENTUCKY
MEDICAL CENTER CAMPUS EXPANSION

BORING LOCATION PLAN

PROJECT NUMBER
24830041
DRAWING NUMBER





FILE NAME: \\EGNYTRD1\VE\OPS\LEXINGTON-1830\PROJECTS\2024\2483004\HDR_UK MEDICAL CENTER CAMPUS EXPANSION\LEXINGTON KY\GEON\CAD\SURFACES_ROCK_EXGROUND\FIG3_SME_BORINGS.DGN



Appendix II – Boring and Sounding Summary / Test Boring Records / Rock Core Photologs

SOIL LOG

LEGEND

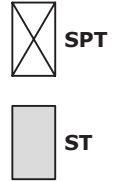


SOIL PROPERTY SYMBOLS

N - Standard Penetration, bpf **LL** - Liquid Limit, % **PPV** - Pocket Penetrometer Value, tsf
NMC - Natural Moisture Content, % **PL** - Plastic Limit, % **Qu** - Unconfined Compressive Strength
F - Fines Content, % **PI** - Plasticity Index, % **γ_d** - Dry Unit Weight, pcf

The STANDARD PENETRATION TEST (SPT) as defined by ASTM D1586 (or AASHTO T206) is a method to obtain a disturbed soil sample for examination and testing and to obtain relative density and consistency information. A standard 1.4-inch I.D./2-inch O.D. split-barrel sampler is driven three 6-inch increments with a 140 lb. hammer freely falling 30 inches. The hammer can either be of a trip, free-fall design, or actuated by a rope and cathead. The SPT N Value is determined by adding the number of blows from the 2nd and 3rd 6-inch increments. A normalized blowcount (N_{60}) may be determined by the following equation: $N_{60} = [\text{Rig Energy Ratio (\%)} / 60] * N$.

SHELBY TUBE (ST) samples are obtained by hydraulically pushing a thin-walled tube (typically 3-inches in diameter) to obtain a relatively undisturbed sample for testing of fine-grained soils to determine engineering properties such as strength, compressibility, permeability, and density. Shelby tubes are sampled in general accordance with ASTM D1587 (AASHTO T207).



Descriptive Order of Soil Strata: Geologic Disposition (i.e., Fill, Colluvium, Alluvium, etc.), ASTM Group Name (ASTM Group Symbol), quantified/qualified soil constituents, misc. constituents, consistency/density, color, organic description, moisture. ASTM group classifications is determined per ASTM D2487 where lab testing has been performed and ASTM D2488 where lab testing has not been performed.

ASTM GROUP NAME (SYMBOL) AND GRAPHIC

	WELL GRADED GRAVEL (GW)		WELL GRADED SAND (SW)		LEAN CLAY (CL)		TOPSOIL
	POORLY GRADED GRAVEL (GP)		POORLY GRADED SAND (SP)		SILTY CLAY (CL-ML)		ASPHALT
	WELL GRADED GRAVEL WITH SILT (GW-GM)		WELL GRADED SAND WITH SILT (SW-SM)		SILT (ML)		BASE - CEMENT MODIFIED
	WELL GRADED GRAVEL WITH CLAY (GW-GC)		WELL GRADED SAND WITH CLAY (SW-SC)		FAT CLAY (CH)		BASE - CEMENT STABILIZED AGGREGATE
	POORLY GRADED GRAVEL WITH SILT (GP-GM)		POORLY GRADED SAND WITH SILT (SP-SM)		ELASTIC SILT (MH)		BASE - GRAVEL
	POORLY GRADED GRAVEL WITH CLAY (GP-GC)		POORLY GRADED SAND WITH CLAY (SP-SC)		ORGANIC LOW PLASTICITY SILT OR CLAY (OL)		CONCRETE
	SILTY GRAVEL (GM)		SILTY SAND (SM)		ORGANIC HIGH PLASTICITY SILT OR CLAY (OH)		VOID / NO RECOVERY
	CLAYEY GRAVEL (GC)		CLAYEY SAND (SC)		PEAT (PT)		IGM / PWR
	CLAYEY GRAVEL WITH SILT (GC-GM)		CLAYEY SAND WITH SILT (SC-SM)				

FINE-GRAINED SOIL (Relative Consistency)			COARSE-GRAINED SOIL (Relative Density)		MINOR CONSTITUENTS (% By Weight)		ORGANIC CONTENT OF SOIL (Determined by ASTM D2974 or AASHTO T267)	
	N	PPV		N		Percentage	Classification	Percentage
Very Soft	< 2 bpf	< 0.25 tsf	Very Loose	< 5 bpf	Trace	0% - 10%	With Organic Matter	4% - 15%
Soft	2 - 4 bpf	> 0.25 - 0.5 tsf	Loose	5 - 10 bpf	Little	11% - 20%	Organic Soil	16% - 30%
Firm	5 - 8 bpf	> 0.5 - 1.0 tsf	Medium Dense	11 - 30 bpf	Some	21% - 35%	Peat	> 30%
Stiff	9 - 15 bpf	> 1.0 - 2.0 tsf	Dense	31 - 50 bpf	"And"	≥ 36%		
Very Stiff	16 - 30 bpf	> 2.0 - 4.0 tsf	Very Dense	> 50 bpf				
Hard	> 30 bpf	> 4.0 tsf						

MOISTURE CONDITION

Dry	Absense of moisture, dusty, dry to touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table



At Time of Drilling (ATD)



End of Drilling



After Drilling

Groundwater observation made anytime during the drilling process. Depending on time of reading and drilling methodologies, this value may be influenced by the drilling process.

Groundwater measurement soon after the drilling processes are complete, and the borehole is at final depth. Drilling fluids, if introduced during drilling, may influence this measurement.

Groundwater measurements made in a borehole hours to days after drilling is complete. Depending on subsurface conditions, elapsed time, drilling process, etc. this observation may reflect a stabilized level.

REFERENCES:

FHWA NHI-16-072, Geotechnical Engineering Circular No. 5 "Geotechnical Site Characterization"

ASTM Specifications D2487 and D2488

DOT Specifications & Design Manuals from NC, SC, OH, MI, IN, PA, VA.

ROCK

CORE LOG

LEGEND



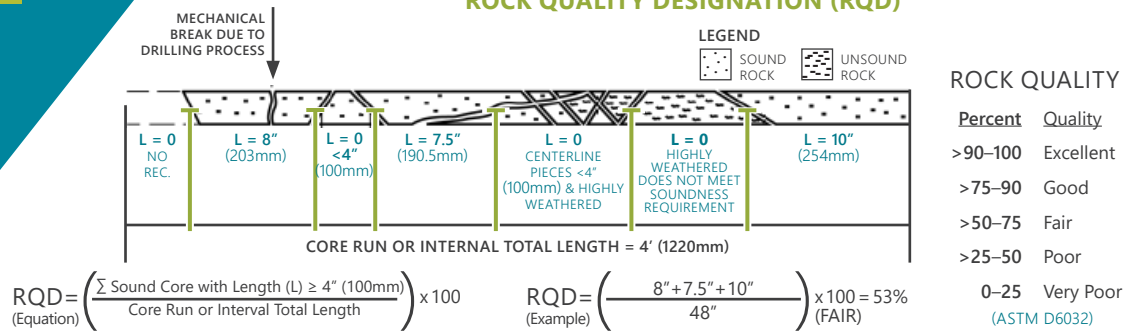
ROCK CORE RECOVERY

Core Diameter (I.D.) Inches

Rock	BQ	1-7/16
Core	NQ	1-7/8
Sample	HQ	2-1/2

$$REC = \frac{\text{Length of Rock Core Recovered}}{\text{Length of Core Run}} \times 100$$

ROCK QUALITY DESIGNATION (RQD)



GRAIN SIZE

Very Fine-Grained	<0.003 in. (<0.075 mm)
Fine-Grained	0.003 – 0.02 in. (0.075 – 0.425 mm)
Medium-Grained	0.02 – 0.8 in. (0.425 – 2 mm)
Coarse-Grained	0.8 – 2 in. (2 – 4.75 mm)
Very Coarse-Grained	>2 in. (>4.75 mm)

BEDDING

Very Thickly Bedded	>3 ft.
Thickly Bedded	3 ft. – 18 in.
Thinly Bedded	18 in. – 2 in.
Very Thinly Bedded	2 in. – 0.4 in.
Laminated	0.4 in. – 0.1 in.
Thinly Laminated	<0.1 in.

FRACTURE RATE / SPACING

Unfractured	>10 ft.
Intact	10 ft. – 3 ft.
Slightly Fractured	3 ft. – 1 ft.
Moderately Fractured	12 in. – 4 in.
Fractured	4 in. – 2 in.
Highly Fractured	<2 in.

SURFACE ROUGHNESS

Very Rough	Near vertical steps and ridges occur on the discontinuity surface.
Slightly Rough	Asperities on the discontinuity surface are distinguishable and can be felt.
Smooth	Surface appears smooth and feels so to the touch.
Slickensided	Surface has a smooth, glassy finish with visual evidence of striation.

WEATHERING

Fresh	No visible sign of rock material weathering; slight discoloration on major discontinuity surfaces is possible.
Slightly Weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All rock material may be discolored by weathering and the external surface may be somewhat weaker than in its fresh condition.
Moderately Weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones. A minimum 2 in. diameter sample cannot be broken readily by hand.
Highly Weathered	More than half the rock is decomposed or disintegrated to soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones. A minimum 2 in. diameter sample can be broken readily by hand across the rock fabric.
Completely Weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is largely still intact. Material can be granulated by hand.
Residual Soil	All rock material is converted to soil. Material can be easily broken apart by hand.

STRENGTH

		APPROX. UNCONFINED COMPRESSIVE STRENGTH (PSI)
Extremely Strong Rock	Specimen can only be chipped with firm blows from the hammer end of a geological hammer.	> 36,250
Very Strong Rock	Specimen requires many firm blows from the hammer end of a geological hammer to fracture.	36,250 – 14,500
Strong Rock	Specimen requires more than one firm blow of the point of a geological hammer to fracture.	14,500 – 7,250
Medium Strong Rock	Specimen cannot be scraped or cut with a pocket knife. Specimen can be fractured with a single firm blow with a geological hammer point.	7,250 – 3,500
Weak Rock	Shallow cuts or scrapes can be made in a specimen with a pocket knife. A firm blow with a geological hammer creates shallow indents.	3,500 – 725
Very Weak Rock	Specimen crumbles under sharp blow with point of geological hammer and can be peeled with a pocket knife.	725 – 150
Extremely Weak Rock	Specimen can be indented by thumbnail.	150 – 35

HARDNESS

Very Hard	Cannot be scratched with a pocket knife; leaves knife steel marks on surface.
Hard	Can be scratched by a pocket knife with difficulty; scratch produces little powder and is only faintly visible; trace of knife's steel may be visible.
Moderately Hard	Can be readily scratched by a pocket knife; scratch leaves a heavy trace of dust and scratch is readily visible after the powder has been blown away.
Low Hardness	Can be gouged deeply or carved with a pocket knife.
Friable	Easily crumbled by hand, pulverized or reduced to powder sand is too soft to be cut by a pocket knife.
Soft	Very weak plastic material.

REFERENCES:

FHWA NHI-16-072, GEOTECHNICAL ENGINEERING CIRCULAR NO. 5 "GEOTECHNICAL SITE CHARACTERIZATION" DOT SPECIFICATIONS & DESIGN MANUALS FROM NC, SC, OH, MI, IN, PA.

UK Medical Center Expansion
Boring and Sounding Summary - S&ME 2024 Exploration
S&ME Project No. 24830041

Boring Number	Surface Elevation	Top of Weathered Rock Depth	Top of Weathered Rock Elevation	Auger Refusal Depth	Auger Refusal Elevation	Northing	Easting	Surface Cover
B-1002	980.2	12.4	967.8	12.4	967.8	192847.28	1565685.78	0.2 Topsoil
B-1007	984.4	18.6	965.8	18.6	965.8	192800.96	1566017.35	0.3 Topsoil
B-1016	980.9	10.9	970.0	10.9	970.0	192727.72	1565567.04	0.3 Topsoil
B-1017	981.4	6.0	975.4	6.4	975.0	192691.76	1565954.50	0.3 Topsoil
B-1018	983.5	9.9	973.6	10.3	973.2	192595.50	1566155.12	0.3 Topsoil
B-1019	983.9	4.9	979.0	5.0	978.9	192600.30	1566329.08	0.3 Aggregate
B-1023	980.3	6.0	974.3	6.0	974.3	192622.88	1565483.22	0.3 Topsoil
B-1024	988.0	17.7	970.3	18.3	969.7	192567.82	1565657.91	0.3 Topsoil
B-1025	987.9	9.0	978.9	9.3	978.6	192559.44	1565827.98	0.3 Topsoil
B-1026	989.1	5.0	984.1	5.0	984.1	192566.18	1565971.50	0.9 Asphalt
B-1028	983.9	11.6	972.3	11.6	972.3	192409.60	1566138.10	0.2 Aggregate
B-1029	984.8	6.3	978.5	6.3	978.5	192334.89	1566330.03	0.7 Asphalt
B-1031	984.8	6.3	978.5	6.3	978.5	192457.53	1565457.31	0.3 Topsoil
B-1032	987.9	11.4	976.5	11.4	976.5	192521.59	1565617.38	0.3 Topsoil
B-1033	992.4	5.9	986.5	5.9	986.5	192454.72	1565689.48	0.4 Aggregate
B-1034	995.2	2.1	993.1	5.9	989.3	192387.88	1565777.54	0.3 Topsoil

Sounding Number	Surface Elevation	Top of Weathered Rock Depth	Top of Weathered Rock Elevation	Auger Refusal Depth	Auger Refusal Elevation	Northing	Easting	Surface Cover
S-1014	984.6	3.3	981.3	3.3	981.3	192612.17	1566627.14	0.3 Topsoil
S-1015	985.0	4.3	980.7	4.3	980.7	192567.36	1566781.89	0.3 Topsoil
S-1020	985.1	0.9	984.2	0.9	984.2	192511.00	1566461.36	0.3 Topsoil
S-1022	986.6	2.3	984.3	2.3	984.3	192397.41	1566721.57	0.3 Topsoil
S-1036	993.7	14.7	979.0	14.7	979.0	192236.04	1566043.29	0.3 Topsoil
S-1037	990.8	13.5	977.3	13.5	977.3	192176.31	1566216.39	0.4 Topsoil
S-1038	991.5	11.4	980.1	11.4	980.1	192060.62	1566250.67	0.3 Topsoil
S-1039	987.2	3.7	983.5	3.7	983.5	192032.75	1566403.61	0.3 Topsoil
S-1040	993.3	3.3	990.0	3.3	990.0	191946.30	1566485.08	0.3 Topsoil
S-1041	1002.3	4.6	997.7	4.6	997.7	191860.60	1566608.27	0.3 Topsoil
S-1101	990.4	7.0	983.4	17.5	972.9	192485.25	1566912.52	0.0 (Bare)
S-1102	986.6	3.9	982.7	11.3	975.3	192406.63	1566894.23	0.0 (Bare)
S-1103	989.9	11.9	978.0	11.9	978.0	192303.25	1566869.59	0.0 (Bare)
S-1104	988.3	9.0	979.3	9.0	979.3	192206.86	1566876.02	0.3 Topsoil
S-1105	989.8	8.2	981.6	8.2	981.6	192112.30	1566853.75	0.3 Topsoil
S-1106	991.5	6.2	985.3	6.2	985.3	192012.16	1566823.50	0.3 Topsoil
S-1107	993.2	3.6	989.6	3.6	989.6	191918.79	1566811.03	0.3 Topsoil
S-1108	994.5	2.9	991.6	2.9	991.6	191843.76	1566795.50	0.3 Topsoil
S-1109	1002.7	3.3	999.4	3.3	999.4	191697.95	1566739.98	0.3 Topsoil
S-1110	1005.3	5.0	1000.3	5.0	1000.3	191602.00	1566741.06	0.6 Asphalt
S-1111	999.5	9.4	990.1	9.4	990.1	191881.13	1566511.72	0.3 Topsoil
S-1113	994.1	8.0	986.1	11.3	982.8	191927.67	1566341.53	0.3 Topsoil
S-1115	995.0	2.8	992.2	2.8	992.2	191956.95	1566228.51	0.8 Asphalt
S-1118	992.2	12.6	979.6	12.6	979.6	192066.99	1566090.43	0.3 Topsoil
S-1121	995.5	11.5	984.0	11.5	984.0	192204.25	1565934.26	0.3 Topsoil
S-1125	992.6	5.7	986.9	5.7	986.9	192366.42	1565715.23	0.3 Topsoil

Northing / Easting given in KY North Zone (FIPS 1601)

PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1002 <i>Sheet 1 of 1</i>	
DATE DRILLED: 11/06/2024		ELEVATION: 980.2 ft		NOTES:	
DRILL RIG: CME 550		DATUM: NAVD88			
DRILLER: Brandon Kenyon		BORING DEPTH: 27.8 ft			
HAMMER TYPE: Automatic hammer		CLOSURE: Installed Observation Well			
DRILLING METHOD: 3-1/4" HSA, NQ		LOGGED BY: Daniel Draper		NORTHING: 192847.3 EASTING: 1565685.8	
SAMPLING METHOD: CORE, SS			PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet		

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA	ELEVATION
						Δ % Fines ○ NMC — PL-LL	
						20 40 60 80 100	
0				TOPSOIL (2 inches)			
0.2			SPT-1 (10 in)	FAT CLAY (CH), stiff, brown to tan, moist, with dark oxide nodules	3-5-6 N = 11		
			SPT-3 (16 in)		3-5-6 N = 11		
5			SPT-2 (18 in)		2-6-7 N = 13		976
5.7				FAT CLAY (CH), stiff, tan to yellow brown, moist, with fragments of weathered limestone increasing with depth			
			SPT-4 (18 in)		2-5-7 N = 12		971
10	Auger refusal at 12.4 feet						
12.4	ROCK UCS = 15,284 psi		RUN-1 REC-100% RQD-54%	FOSSILIFEROUS LIMESTONE, light gray, good-quality, hard, strong, well-cemented			966
15							
	ROCK UCS = 12,944 psi		RUN-2 REC-100% RQD-100%				961
20							
			RUN-3 REC-100% RQD-78%				956
25							
			RUN-4 REC-97% RQD-77%				951
27.8				Borehole terminated at 27.8 feet			946
30							
35							

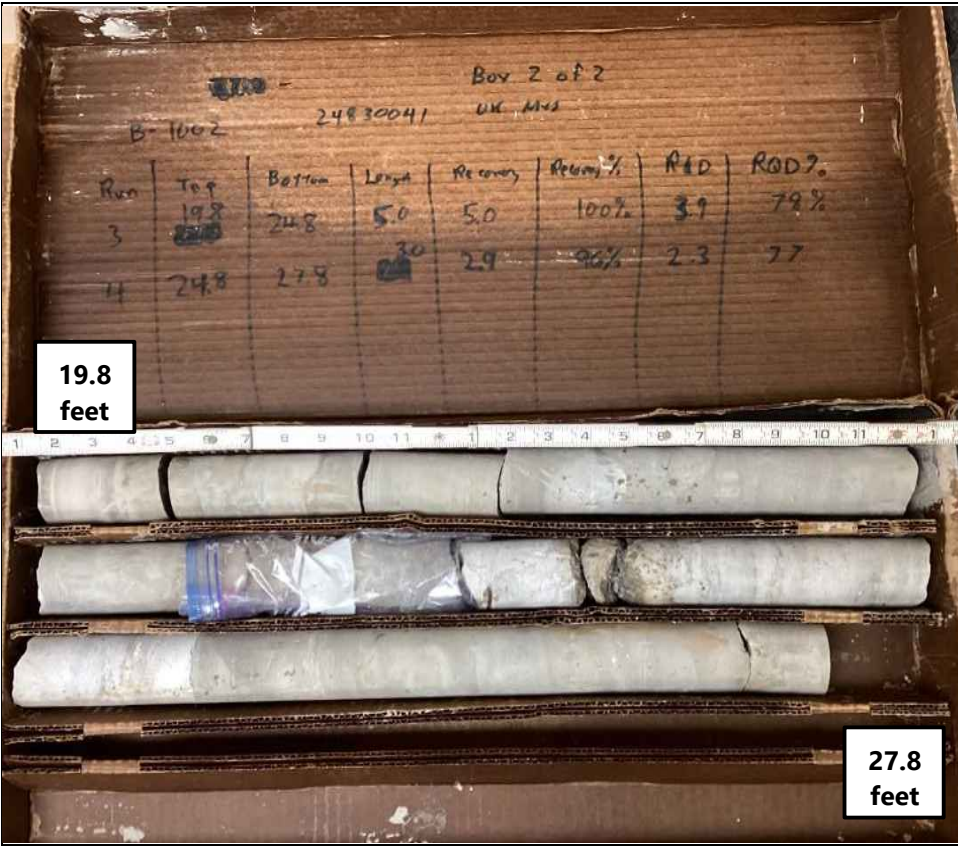
GROUNDWATER	DATE	DEPTH (FT)	REMARKS
ATD	11/06/2024		Not encountered prior to coring
END OF DRILLING			
AFTER DRILLING	11/07/2024	1.9	Not encountered prior to coring
AFTER DRILLING			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
 LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf),
 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	12.4-24.8 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	980.2
Latitude:	38.029277
Longitude:	-84.509441
Remarks:	Light gray to gray fossiliferous limestone interbedded with shale
Box:	Borehole:
1 of 2	B-1002



Depth:	19.8-27.8 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	980.2
Latitude:	38.029277
Longitude:	-84.509441
Remarks:	Light gray to gray fossiliferous limestone interbedded with shale
Box:	Borehole:
2 of 2	B-1002

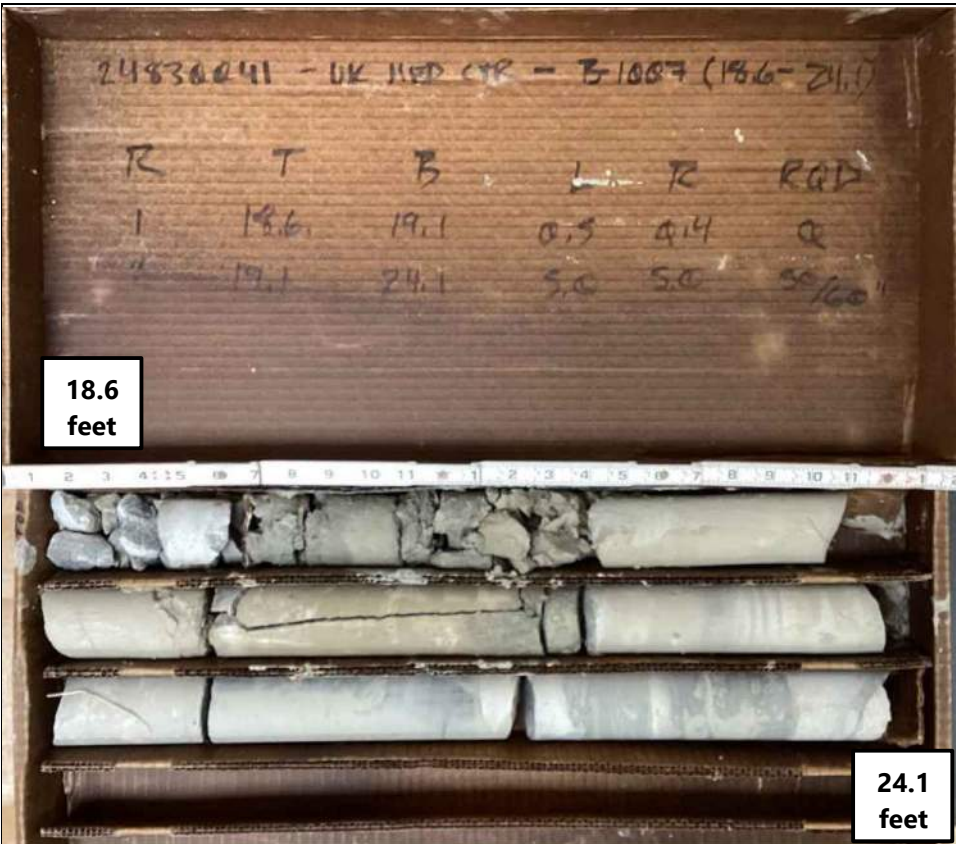
PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1007 Sheet 1 of 1			
DATE DRILLED: 11/05/2024		ELEVATION: 984.4 ft		NOTES: NORTHING: 192801.0 EASTING: 1566017.4			
DRILL RIG: CME 550		DATUM: NAVD88					
DRILLER: Brandon Kenyon		BORING DEPTH: 34.1 ft					
HAMMER TYPE: Automatic hammer		CLOSURE: Installed Piezometer					
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts					
SAMPLING METHOD: CORE, SS		PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet					

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA					ELEVATION
						20	40	60	80	100	
0				TOPSOIL (4 inches)							
0.3				(CH), very stiff, brown, moist	5-11-13						
1.5			SS-1 (6 in)	CRUSHED LIMESTONE, medium dense, light gray	N = 24	○	●				
			SS-2 (6 in)		5-10-9	○	●				
5			SS-3 (6 in)		5-5-4	○	●				
			SS-4 (6 in)		5-6-7	○	●				
10			SS-5 (6 in)		3-4-4	○	●				
			SS-6 (1 in)		50/1"	○					
	Equipment refusal at 18.6 feet				N = 50/1"					●	
20	ROCK UCS = 7,491 psi		Run-1 REC-80% RQD-0%	FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, interbedded, with occasional mud seams							965
			Run-2 REC-100% RQD-84%								
25	ROCK UCS = 10,223 psi		Run-3 REC-100% RQD-92%								960
			Run-4 REC-100% RQD-92%								
30											955
34.1				Borehole terminated at 34.1 feet							950

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/05/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
 LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf),
 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	18.6-24.1 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	984.4
Latitude:	38.029152
Longitude:	-84.508289
Remarks:	Light gray to gray limestone interbedded with shale
Box:	Borehole:
1 of 2	B-1007



Depth:	24.1-34.1 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	984.4
Latitude:	38.029152
Longitude:	-84.508289
Remarks:	Light gray to gray limestone interbedded with shale
Box:	Borehole:
2 of 2	B-1007

PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1016 <i>Sheet 1 of 1</i>			
DATE DRILLED: 11/07/2024		ELEVATION: 980.9 ft		NOTES: NORTHING: 192727.7 EASTING: 1565567.0			
DRILL RIG: CME 550		DATUM: NAVD88					
DRILLER: Brandon Kenyon		BORING DEPTH: 25.9 ft					
HAMMER TYPE: Automatic hammer		CLOSURE: Installed Observation Well					
DRILLING METHOD: 3-1/4" HSA, NQ		LOGGED BY: Daniel Draper		PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet			
SAMPLING METHOD: CORE, SS, UD							

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA					ELEVATION
						20	40	60	80	100	
0				TOPSOIL (4 inches)							
	SOIL UCS = 4,451 PSF		SPT-1 (11 in)	LEAN CLAY (CL), very stiff, brown, moist	5-9-10 N = 19	●					
5			UC-1 REC-100%	FAT CLAY (CH), very stiff, dark brown, moist		○	—				976
			SPT-2 (16 in)		3-5-14 N = 19	●					
			SPT-3 (12 in)	LIMESTONE, light gray, moderately weathered, limestone float (not bedrock)							
10	Auger refusal at 10.9 feet			FAT CLAY (CH), firm, dark brown, with weathered limestone rock fragments	2-3-4 N = 7	●	○				971
	ROCK UCS = 12,225 psi		RUN-1 REC-100% RQD-46%	FOSSILIFEROUS LIMESTONE, light gray, good quality, hard, strong, well-cemented, low-shale content (>10%)							966
15			RUN-2 REC-98% RQD-54%								
20	ROCK UCS = 20,997 psi		RUN-3 REC-100% RQD-96%								961
25			RUN-4 REC-80% RQD-80%								956
25.9				Borehole terminated at 25.9 feet							
30											951
35											

GROUNDWATER	DATE	DEPTH (FT)	REMARKS
ATD	11/07/2024		Not encountered prior to coring
END OF DRILLING			
AFTER DRILLING			
AFTER DRILLING			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

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 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	10.9-19.4 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	980.9
Latitude:	38.028948
Longitude:	-84.509852
Remarks:	Light gray to gray limestone interbedded with shale, occasional mud seams
Box:	Borehole:
1 of 2	B-1016



Depth:	19.4-25.9 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	980.9
Latitude:	38.028948
Longitude:	-84.509852
Remarks:	Light gray to gray limestone interbedded with shale
Box:	Borehole:
2 of 2	B-1016

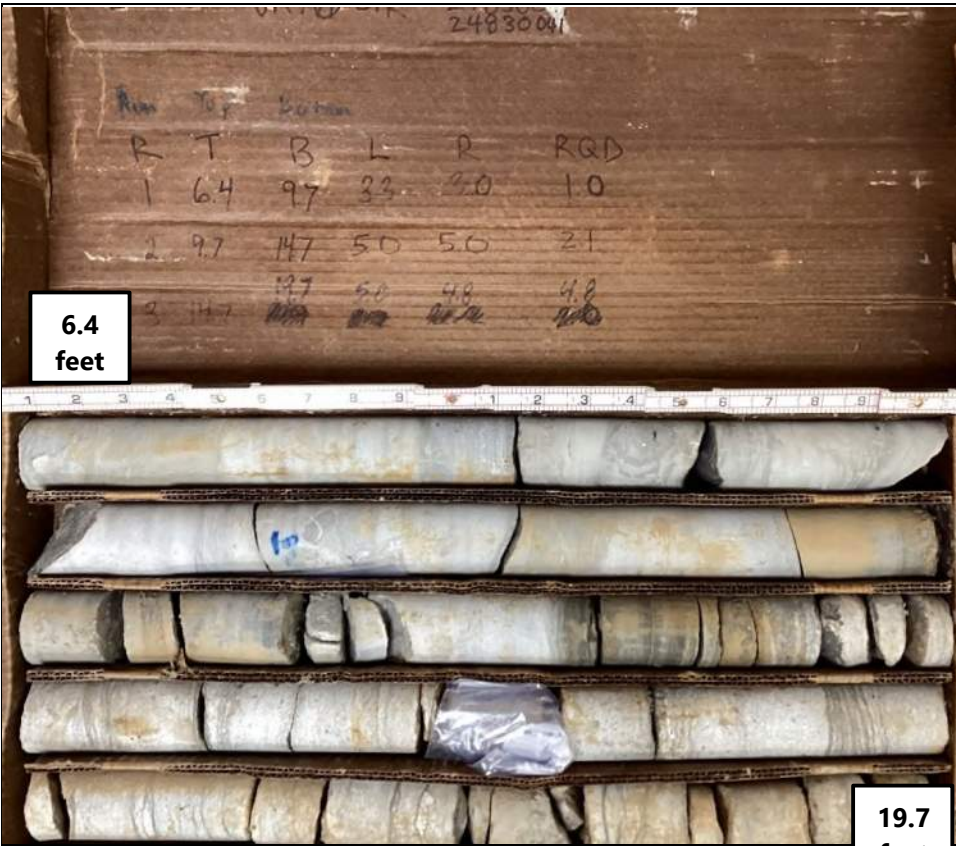
PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1017 <i>Sheet 1 of 1</i>	
DATE DRILLED: 11/06/2024		ELEVATION: 981.4 ft		NOTES:	
DRILL RIG: CME 550		DATUM: NAVD88			
DRILLER: Brandon Kenyon		BORING DEPTH: 21.9 ft			
HAMMER TYPE: Automatic hammer		CLOSURE: Installed Observation Well			
DRILLING METHOD: 3-1/4" HSA, NQ		LOGGED BY: Daniel Draper		NORTHING: 192691.8 EASTING: 1565954.5	
SAMPLING METHOD: CORE, SS, AU				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet	

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA	ELEVATION
						△ % Fines ○ NMC H PL-LL 20 40 60 80 100	
0				TOPSOIL (4 inches)			
			SPT-1 (11 in)	LEAN CLAY (CL), stiff, brown, moist	2-5-5 N = 10	● ○	
			SPT-2 (16 in)	FAT CLAY (CH), stiff, brown, moist	2-5-5 N = 10	● ○	
5	Auger refusal at 6.4 feet		SPT-3 (1 in)	FOSSILIFEROUS LIMESTONE, light gray with brown, heavily-weathered limestone fragments in a soil matrix	50/1" N = 50/1"	○ ●	977
	ROCK UCS = 14,824 psi		RUN-1 REC-91% RQD-30%	FOSSILIFEROUS LIMESTONE, light gray, well-cemented, low-shale content (>10%)			972
10			RUN-2 REC-100% RQD-42%				967
15	ROCK UCS = 9,970 psi		RUN-3 REC-96% RQD-96%				962
20			RUN-4 REC-100% RQD-91%				957
21.9				Borehole terminated at 21.9 feet			952
25							947
30							
35							

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/06/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒	11/06/2024	10.4	Not encountered prior to coring
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

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 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	6.4-19.7 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	981.4
Latitude:	38.028852
Longitude:	-84.508506
Remarks:	Light gray to gray fossiliferous limestone interbedded with shale
Box:	Borehole:
1 of 2	B-1017



Depth:	19.7-21.9 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	981.4
Latitude:	38.028852
Longitude:	-84.508506
Remarks:	Light gray to gray fossiliferous limestone interbedded with shale
Box:	Borehole:
2 of 2	B-1017

PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1018 <i>Sheet 1 of 1</i>	
DATE DRILLED: 11/04/2024		ELEVATION: 983.5 ft		NOTES:	
DRILL RIG: CME 550		DATUM: NAVD88			
DRILLER: Brandon Kenyon		BORING DEPTH: 25.0 ft			
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings			
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts		NORTHING: 192595.5 EASTING: 1566155.1	
SAMPLING METHOD: SS, CORE			PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet		

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA						ELEVATION	
						20	40	60	80	100			
0				TOPSOIL (4 inches)									
0.3		[Diagonal Hatching]	SS-1 (5 in)	LEAN CLAY (CL), firm, red brown, moist, with black oxide nodules	2-2-3 N = 5	●	○						
3.5		[Diagonal Hatching]	SS-2 (12 in)	LEAN CLAY (CL), firm, brown and gray, moist	1-3-4 N = 7	●	○						
5.0		[Diagonal Hatching]	SS-3 (18 in)	FAT CLAY (CH), stiff, red brown mottled with orange, moist, with black oxide nodules	2-4-6 N = 10	●	○						
8.5		[Diagonal Hatching]	SS-4 (18 in)	FAT CLAY (CH), stiff, light brown with gray, moist, contains black oxide nodules, with fragments of weathered limestone	3-5-8 N = 13	●							
10.3	Auger refusal at 10.3 feet	[Horizontal Hatching]	Run-1 REC-100% RQD-34%	FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, interbedded with shale, occasional mud seams								979	
15	ROCK UCS = 15,734 psi	[Horizontal Hatching]	Run-2 REC-100% RQD-79%										969
20		[Horizontal Hatching]	Run-3 REC-98% RQD-98%										964
25.0		[Horizontal Hatching]			Borehole terminated at 25.0 feet								959
35												954	
												949	

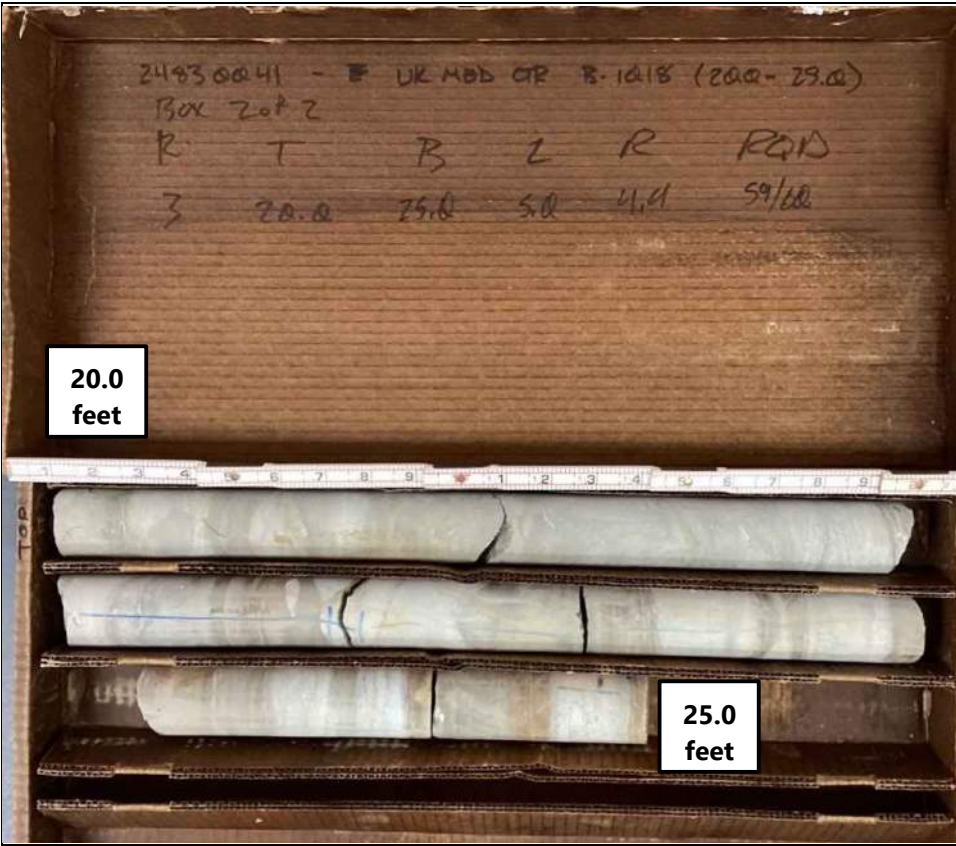
GROUNDWATER	DATE	DEPTH (FT)	REMARKS
ATD	11/04/2024		Not encountered prior to coring
END OF DRILLING			
AFTER DRILLING			
AFTER DRILLING			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
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 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	10.3-20.0 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	983.5
Latitude:	38.028589
Longitude:	-84.507809
Remarks:	Light gray to gray limestone interbedded with shale, occasional mud seams
Box:	Borehole:
1 of 2	B-1018



Depth:	20.0-25.0 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	983.5
Latitude:	38.028589
Longitude:	-84.507809
Remarks:	Light gray to gray limestone interbedded with shale
Box:	Borehole:
2 of 2	B-1018

PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1019 Sheet 1 of 1	
DATE DRILLED: 11/05/2024		ELEVATION: 983.9 ft		NOTES:	
DRILL RIG: CME 550		DATUM: NAVD88			
DRILLER: Brandon Kenyon		BORING DEPTH: 15.3 ft			
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings			
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts		NORTHING: 192600.3 EASTING: 1566329.1	
SAMPLING METHOD: SS, CORE				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet	

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA						ELEVATION
						△ % Fines	○ NMC	├─ PL-LL				
						20	40	60	80	100		
0												
	0.3		SS-1 (5 in)	CRUSHED LIMESTONE	4-4-5 N = 9		●					
	3.5		SS-2 (18 in)	FAT CLAY (CH), stiff, brown, moist, with fragments of crushed limestone	4-5-23 N = 28			●				
5	Auger refusal at 5.0 feet	5.0		FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, with occasional mud seams								979
10	ROCK UCS = 10,507 psi		Run-1 REC-6% RQD-0%									974
15			Run-2 REC-100% RQD-45%									969
	15.3			Borehole terminated at 15.3 feet								
20												964
25												959
30												954
35												

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/05/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)



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AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	4.9-15.2 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	983.9
Latitude:	38.028604
Longitude:	-84.507205
Remarks:	Light gray to gray limestone interbedded with shale, occasional mud seams
Box:	Borehole:
1 of 1	B-1019

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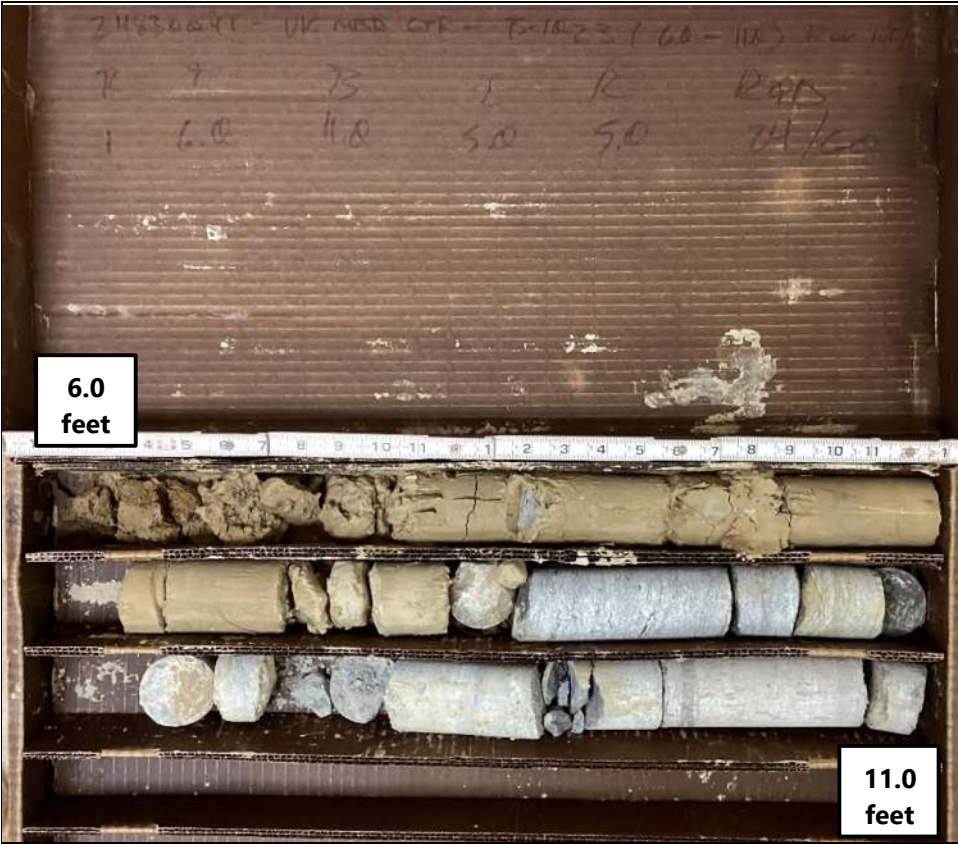
PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1023 <i>Sheet 1 of 1</i>	
DATE DRILLED: 11/11/2024		ELEVATION: 980.3 ft		NOTES:	
DRILL RIG: CME 550		DATUM: NAVD88			
DRILLER: Brandon Kenyon		BORING DEPTH: 11.0 ft			
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings			
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts		NORTHING: 192622.9 EASTING: 1565483.2	
SAMPLING METHOD: SS, CORE, UD				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet	

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA	ELEVATION
						△ % Fines ○ NMC ┤ PL--LL 20 40 60 80 100	
0				TOPSOIL (4 inches)			
0.3			SS-1 (12 in)	FAT CLAY (CH), very stiff, brown, moist, with black oxide nodules	3-6-10 N = 16	●	
5	SOIL UCS = 8,632 PSF		UD-1 REC-100%				976
6.0	Auger refusal at 6.0 feet			FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, interbedded, some limestone segments are well-sorted, well-cemented, low in shale (>10%)			971
10	ROCK UCS = 10,784 psi		Run-1 REC-100% RQD-40%				966
11.0				Borehole terminated at 11.0 feet			961
15							956
20							951
25							946
30							
35							

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/11/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

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 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	6.0-11.0 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	980.3
Latitude:	38.028659
Longitude:	-84.510142
Remarks:	Mud seams and fat clay, light gray to gray fossiliferous limestone interbedded with shale
Box:	Borehole:
1 of 1	B-1023

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PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1024 Sheet 1 of 1			
DATE DRILLED: 11/11/2024		ELEVATION: 988.0 ft		NOTES: NORTHING: 192567.8 EASTING: 1565657.9			
DRILL RIG: CME 550		DATUM: NAVD88					
DRILLER: Brandon Kenyon		BORING DEPTH: 33.3 ft					
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings					
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts					
SAMPLING METHOD: CORE, SS		PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet					

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA						ELEVATION	
						△ % Fines	○ NMC	├ PL-LL	20	40	60		80
0				TOPSOIL (4 inches)									988
0.3		/	SS-1 (5 in)	FAT CLAY (CH), stiff, brown, moist	2-3-7 N = 10	●							
2.5		/	SS-2 (13 in)	FAT CLAY (CH), stiff to very stiff, red brown, moist, with black oxide nodules, contains fragments of weathered limestone (found at depth 7.4 to 7.6)	1-7-7 N = 14	●							
5		/	SS-3 (16 in)		3-6-11 N = 17	●							983
10		/	SS-4 (14 in)		5-7-11 N = 18	●							978
15		/	SS-5 (14 in)		2-7-5 N = 12	●							973
	Auger refusal at 18.3 feet			FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, weathered rock									
20	ROCK UCS = 23,328 psi	17.7 18.3	Run-1 REC-87% RQD-80%	FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, interbedded, low shale (>10%) limestone segments are well-cemented, well-sorted, rock is sometimes slightly-weathered									968
25	ROCK UCS = 7,335 psi		Run-2 REC-100% RQD-82%										963
30			Run-3 REC-100% RQD-90%										958
33.3			Run-4 REC-100% RQD-74%										
35				Borehole terminated at 33.3 feet									

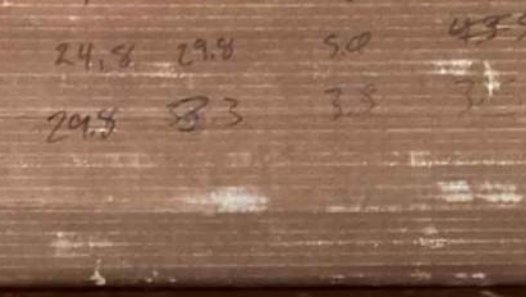
GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/11/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

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 AR = Auger Refusal, IGM = Intermediate Geomaterial

S&ME Project Number 24830041



	Depth:	24.8-33.3 feet
	Date:	11/25/2024
	Photographer:	Elijah Bacot
	Surface Elevation:	988.0
	Latitude:	38.028509
	Longitude:	-84.509535
Remarks: Light gray to gray limestone interbedded with shale		
Box:		Borehole:
2 of 2		B-1024

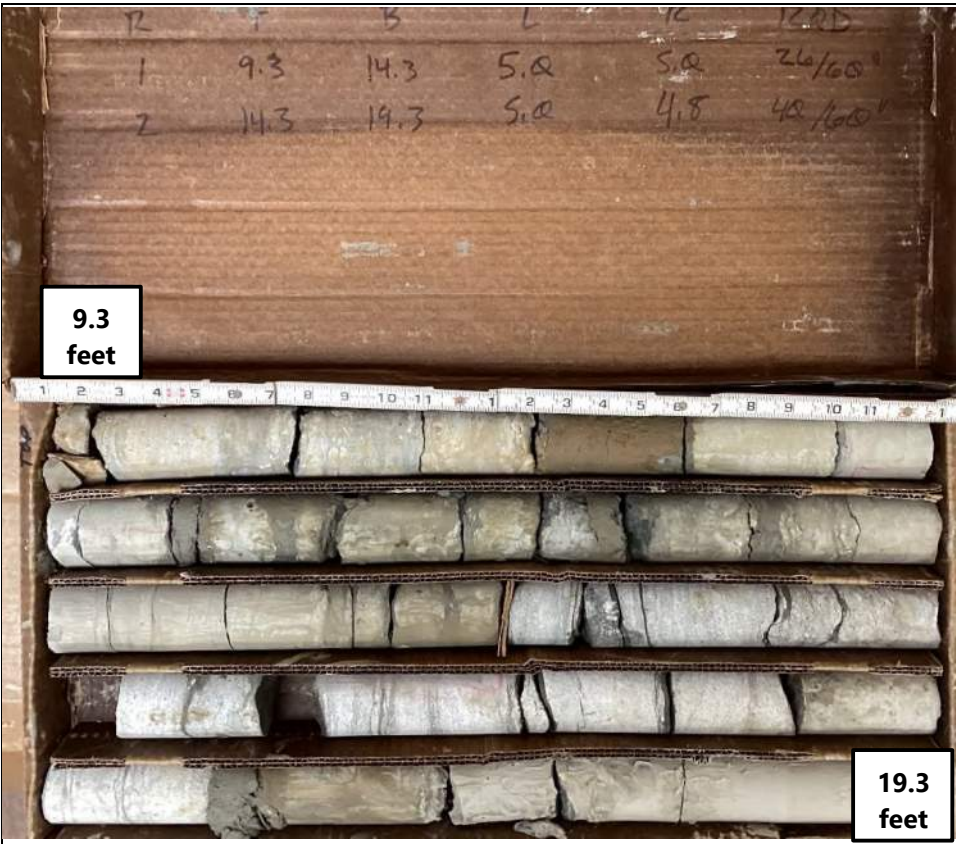
PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1025 <i>Sheet 1 of 1</i>			
DATE DRILLED: 11/07/2024		ELEVATION: 987.9 ft		NOTES:			
DRILL RIG: CME 550		DATUM: NAVD88					
DRILLER: Brandon Kenyon		BORING DEPTH: 24.3 ft					
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings					
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts		NORTHING: 192559.4		EASTING: 1565828.0	
SAMPLING METHOD: SS, CORE				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet			

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA					ELEVATION
						20	40	60	80	100	
0				TOPSOIL (4 inches)							
0.3			SS-1 (60 in)	FAT CLAY (CH), stiff, red brown, moist, with black oxide nodules	2-5-9 N = 14	●					
4.2	SS-2 (18 in)		(CH), stiff, light brown to orange, moist, with black oxide nodules	5-5-4 N = 9	●						
	SS-3 (18 in)			3-5-7 N = 12	●						
	SS-4 (7 in)		FOSSILIFEROUS LIMESTONE, light gray, weathered rock	2-50/1" N = 50/1"				●			
10	Auger refusal at 9.3 feet ROCK UCS = 8,571 psi	9.0 9.3		FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray to gray, interbedded							978
15	ROCK UCS = 8,998 psi		Run-1 REC-100% RQD-44%								973
20			Run-2 REC-96% RQD-66%								968
24.3			Run-3 REC-100% RQD-72%								963
25				Borehole terminated at 24.3 feet							
30											958
35											

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/07/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

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 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	9.3-19.3 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	987.9
Latitude:	38.028488
Longitude:	-84.508944
Remarks:	Light gray to gray limestone interbedded with shale, occasional mud seams
Box:	Borehole:
1 of 2	B-1025



Depth:	19.3-24.3 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	987.9
Latitude:	38.028488
Longitude:	-84.508944
Remarks:	Light gray to gray limestone interbedded with shale
Box:	Borehole:
2 of 2	B-1025

PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1026 <i>Sheet 1 of 1</i>			
DATE DRILLED: 11/12/2024		ELEVATION: 989.1 ft		NOTES:			
DRILL RIG: CME 550		DATUM: NAVD88					
DRILLER: Brandon Kenyon		BORING DEPTH: 20.0 ft					
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings and Asphalt Patch					
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts		NORTHING: 192566.2 EASTING: 1565971.5			
SAMPLING METHOD: CORE, SS				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet			

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA	ELEVATION
						△ % Fines ○ NMC ┘ PL--LL 20 40 60 80 100	
0				ASPHALT (11 inches)			
0.9							
1.2			SS-1 (2 in)	CRUSHED LIMESTONE (4 inches)	3-3-4 N = 7	●	
				FAT CLAY (CH), firm, brown, moist, with black oxide nodules			
			SS-2 (10 in)		2-3-4 N = 7	●	
5	Auger refusal at 5.0 feet						985
5				FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, interbedded			
10	ROCK UCS = 8,654 psi		Run-1 REC-98% RQD-26%				980
15	ROCK UCS = 17,354 psi		Run-2 REC-98% RQD-62%				975
20			Run-3 REC-100% RQD-94%				970
20				Borehole terminated at 20.0 feet			
25							965
30							960
35							955

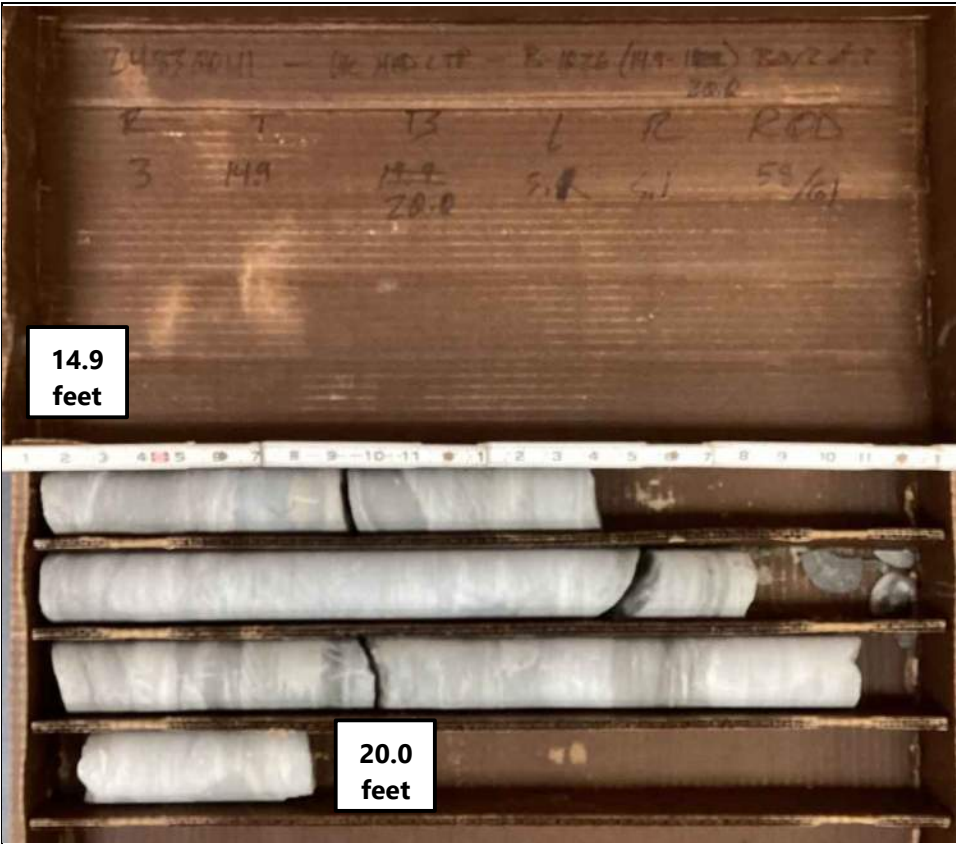
GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/12/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
 LL=Liquid Limit, PL = Plastic Limit, NMC = Natural Moisture Content, PPV = Pocket Penetrometer (tsf), PTV = Pocket Torvane (tsf),
 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	5.0-14.9 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	989.1
Latitude:	38.028507
Longitude:	-84.508446
Remarks:	Light gray to gray limestone interbedded with shale, occasional mud seams
Box:	Borehole:
1 of 2	B-1026



Depth:	14.9-20.0 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	989.1
Latitude:	38.028507
Longitude:	-84.508446
Remarks:	Light gray to gray limestone interbedded with shale
Box:	Borehole:
2 of 2	B-1026

PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1028 <i>Sheet 1 of 1</i>			
DATE DRILLED: 11/01/2024		ELEVATION: 983.9 ft		NOTES:			
DRILL RIG: CME 550		DATUM: NAVD88					
DRILLER: Brandon Kenyon		BORING DEPTH: 17.1 ft					
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings					
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Elijah Bacot		NORTHING: 192409.6 EASTING: 1566138.1			
SAMPLING METHOD: SS, CORE				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet			

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA						ELEVATION
						△ % Fines	○ NMC	├ PL-LL				
						20	40	60	80	100		
0				CRUSHED LIMESTONE (3 inches)								
0.2		[Diagonal Hatching]	SS-1 (10 in)	FAT CLAY (CH), stiff, dark brown mottled with orange, moist, contains black oxide nodules	3-4-5 N = 9	●						
3.5		[Diagonal Hatching]	SS-2 (15 in)	FAT CLAY (CH), stiff to very stiff, brown to dark brown, moist, with black oxide nodules	3-6-9 N = 15	●						
5		[Diagonal Hatching]	SS-3 (12 in)		6-8-8 N = 16	●						
10		[Diagonal Hatching]	SS-4 (15 in)		2-5-5 N = 10	●						
	Auger refusal at 11.6 feet											
11.6	ROCK UCS = 11,770 psi	[Horizontal Hatching]	Run-1 REC-94% RQD-23%	FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, interbedded, with occasional mud seams							979	
17.1		[Horizontal Hatching]	Run-2 REC-100% RQD-90%	Borehole terminated at 17.1 feet							974	
15											969	
20											964	
25											959	
30											954	
35												

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/01/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
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 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	11.6-17.1 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	983.9
Latitude:	38.028079
Longitude:	-84.507866
Remarks:	Light gray to gray limestone interbedded with shale, occasional mud seams
Box:	Borehole:
1 of 1	B-1028

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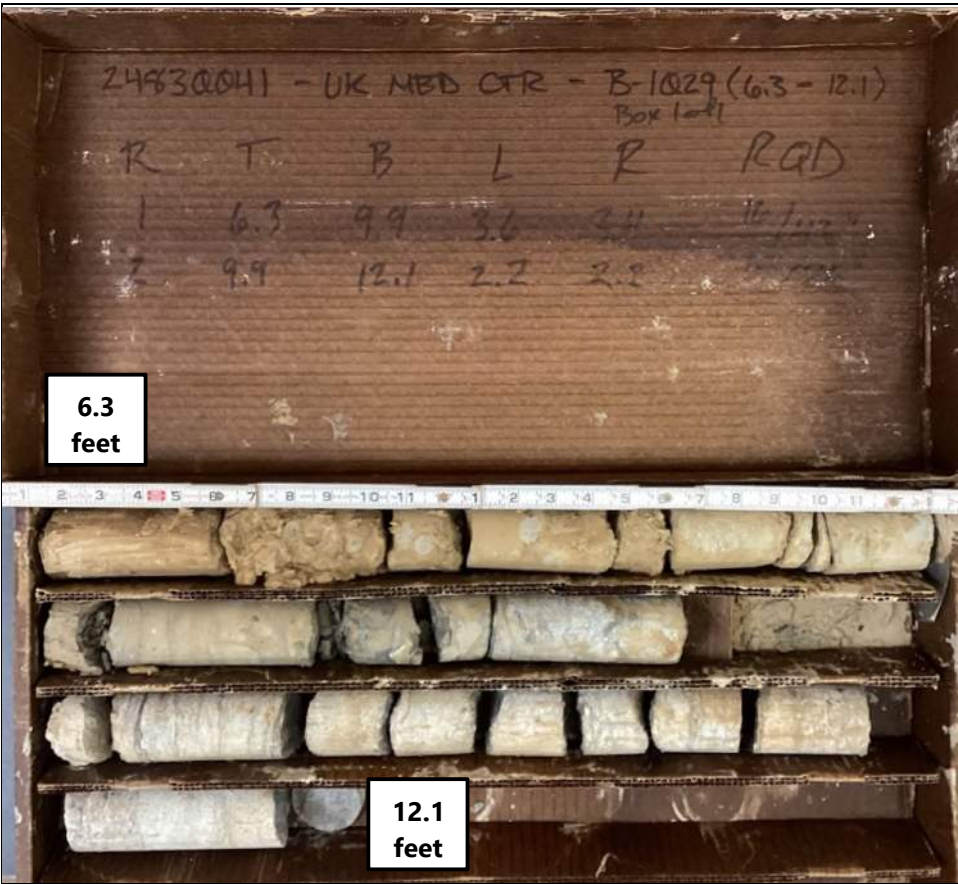
PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1029 <i>Sheet 1 of 1</i>	
DATE DRILLED: 11/04/2024		ELEVATION: 984.8 ft		NOTES:	
DRILL RIG: CME 550		DATUM: NAVD88			
DRILLER: Brandon Kenyon		BORING DEPTH: 12.1 ft			
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings and Asphalt Patch			
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts		NORTHING: 192334.9 EASTING: 1566330.0	
SAMPLING METHOD: CORE, SS				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet	

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA	ELEVATION
						△ % Fines ○ NMC H PL-LL 20 40 60 80 100	
0				ASPHALT (8 inches)			
0.7			SS-1 (8 in)	CRUSHED LIMESTONE (5 inches)	1-9-11 N = 20		
1.1				FAT CLAY (CH), very stiff, dark gray to brown, moist,			
3.5			SS-2 (18 in)	with fragments of weathered limestone	4-11-9 N = 20		
5	Equipment refusal at 6.3 feet		SS-3 (3 in)	FAT CLAY (CH), very stiff, dark red brown mottled with orange, moist, contains black oxide nodules	50/4" N = 50/4"		980
6.3			Run-1 REC-94% RQD-36%	FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, with occasional mud seams			
10	ROCK UCS = 10,408 psi		Run-2 REC-100% RQD-36%				975
12.1				Borehole terminated at 12.1 feet			
15							970
20							965
25							960
30							955
35							

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/04/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
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 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	6.3-12.1 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	984.8
Latitude:	38.027875
Longitude:	-84.507199
Remarks:	Light gray to gray limestone interbedded with shale, occasional mud seams
Box:	Borehole:
1 of 1	B-1029

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PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1031 <i>Sheet 1 of 1</i>			
DATE DRILLED: 10/31/2024		ELEVATION: 984.8 ft		NOTES: 			
DRILL RIG: CME 550		DATUM: NAVD88					
DRILLER: Brandon Kenyon		BORING DEPTH: 11.3 ft					
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings					
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts		NORTHING: 192457.5 EASTING: 1565457.3			
SAMPLING METHOD: CORE, SS				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet			

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA	ELEVATION
						△ % Fines ○ NMC ┤ PL--LL 20 40 60 80 100	
0				TOPSOIL (4 inches)			
	0.3		SS-1 (12 in)	FAT CLAY (CH), very stiff, brown, moist, with black oxide nodules	4-7-12 N = 19		
			SS-2 (11 in)		2-8-8 N = 16		
5	Auger refusal at 6.3 feet						980
	ROCK UCS = 10,188 psi	6.3		FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, interbedded, light gray			
10			Run-1 REC-94% RQD-76%				975
	11.3			Borehole terminated at 11.3 feet			
15							970
20							965
25							960
30							955
35							

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	10/31/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
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 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	6.3-11.3 feet
Date:	12/02/2024
Photographer:	Elijah Bacot
Surface Elevation:	984.8
Latitude:	38.028205
Longitude:	-84.510230
Remarks:	Light gray to gray limestone interbedded with shale, occasional mud seams
Box:	Borehole:
1 of 1	B-1031

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PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1032 Sheet 1 of 1			
DATE DRILLED: 11/08/2024		ELEVATION: 987.9 ft		NOTES:			
DRILL RIG: CME 550		DATUM: NAVD88					
DRILLER: Brandon Kenyon		BORING DEPTH: 26.2 ft					
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings					
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts		NORTHING: 192521.6 EASTING: 1565617.4			
SAMPLING METHOD: SS, UD, CORE				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet			

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA					ELEVATION
						20	40	60	80	100	
0				TOPSOIL (4 inches)							
0.3	SOIL UCS = 4,678 PSF		SS-1 (6 in)	FAT CLAY (CH), very stiff, brown, moist, contains black oxide nodules	4-9-9 N = 18	●					
5			UD-1 REC-100%								983
			SS-2 (18 in)		5-7-11 N = 18	●					
10	Auger refusal at 11.4 feet		SS-3 (11 in)		5-10-11 N = 21	●					978
11.4	ROCK UCS = 11,600 psi		Run-1 REC-91% RQD-42%	FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, contains occasional mud seams, some limestone segments are well-sorted, well-cemented, low in shale (>10%)							973
15			Run-2 REC-96% RQD-46%								968
20			Run-3 REC-100% RQD-84%								963
25			Run-4 REC-100% RQD-73%								958
26.2				Borehole terminated at 26.2 feet							
30											
35											

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD		11/08/2024		Not encountered prior to coring
END OF DRILLING				
AFTER DRILLING				
AFTER DRILLING				

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

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AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	11.4-14.7 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	987.9
Latitude:	38.028382
Longitude:	-84.509675
Remarks:	Light gray to gray limestone interbedded with shale, occasional mud seams
Box:	Borehole:
1 of 2	B-1032



Depth:	14.7-26.2 feet
Date:	11/25/2024
Photographer:	Elijah Bacot
Surface Elevation:	987.9
Latitude:	38.028382
Longitude:	-84.509675
Remarks:	Light gray to gray limestone interbedded with shale
Box:	Borehole:
2 of 2	B-1032

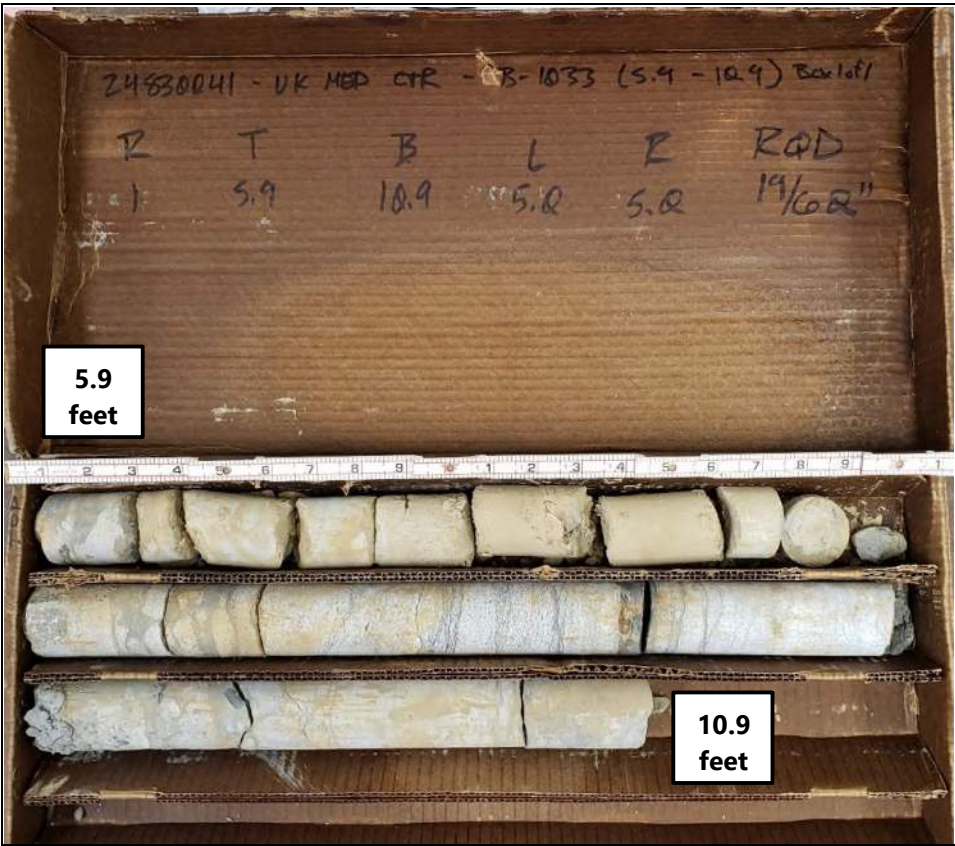
PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1033 <i>Sheet 1 of 1</i>	
DATE DRILLED: 11/08/2024		ELEVATION: 992.4 ft		NOTES:	
DRILL RIG: CME 550		DATUM: NAVD88			
DRILLER: Brandon Kenyon		BORING DEPTH: 10.9 ft			
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings			
DRILLING METHOD: 4-1/4" HSA, NQ		LOGGED BY: Bryan Roberts		NORTHING: 192454.7 EASTING: 1565689.5	
SAMPLING METHOD: CORE, UD, SS				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet	

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA	ELEVATION
						△ % Fines ○ NMC ┤ PL--LL 20 40 60 80 100	
0							988
0.4				CRUSHED LIMESTONE (5 inches)			
	SOIL UCS = 3,084 PSF		SS-1 (11 in)	FAT CLAY (CH), stiff, brown, moist, contains black oxide nodules	3-4-5 N = 9	●	
5	Auger refusal at 5.9 feet		UD-1 REC-100%				
5.9				FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, interbedded			983
	ROCK UCS = 8,622 psi		Run-1 REC-100% RQD-32%				
10							978
10.9				Borehole terminated at 10.9 feet			973
15							968
20							963
25							958
30							
35							

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/08/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
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Depth:	5.9-10.9 feet
Date:	12/02/2024
Photographer:	Elijah Bacot
Surface Elevation:	992.4
Latitude:	38.028199
Longitude:	-84.509424
Remarks:	Light gray to gray limestone interbedded with shale
Box:	Borehole:
1 of 1	B-1033

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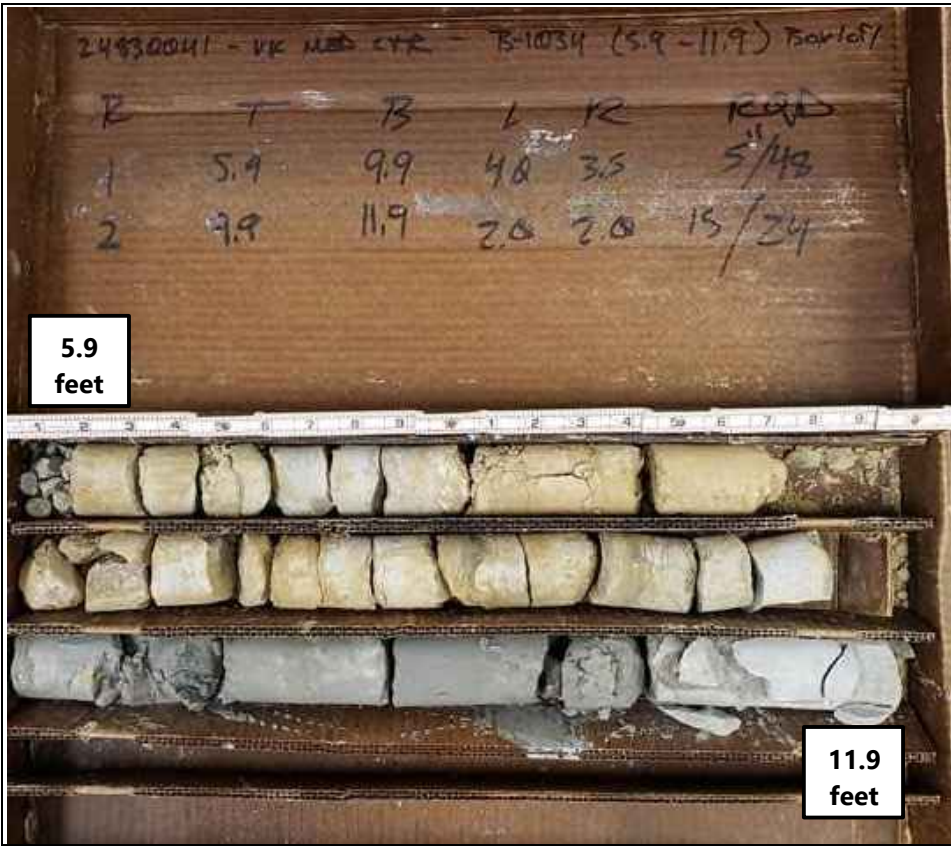
PROJECT: UK Medical Center Campus Expansion S&ME Project No. 24830041				BORING LOG: B-1034 <i>Sheet 1 of 1</i>	
DATE DRILLED: 11/08/2024		ELEVATION: 995.2 ft		NOTES:	
DRILL RIG: CME 550		DATUM: NAVD88			
DRILLER: Brandon Kenyon		BORING DEPTH: 11.9 ft			
HAMMER TYPE: Automatic hammer		CLOSURE: Cuttings			
DRILLING METHOD: 4-1/4" HSA		LOGGED BY: Bryan Roberts		NORTHING: 192387.9 EASTING: 1565777.5	
SAMPLING METHOD: SS, UD, CORE				PROJECT COORDINATE SYSTEM - NAD 1983 StatePlane Kentucky North FIPS 1601 Feet	

DEPTH (feet)	NOTES	GRAPHIC	SAMPLE NO. (RECOVERY)	MATERIAL DESCRIPTION	BLOW COUNT DATA (SPT N-value)	STANDARD PENETRATION TEST DATA					ELEVATION
						20	40	60	80	100	
0				TOPSOIL (4 inches)							
0.3			SS-1 (18 in)	FAT CLAY (CH), very stiff, brown, moist, with fragments of weathered limestone	4-8-11 N = 19	●					
2.1											
5	Auger refusal at 5.9 feet		UD-1 REC-40%	LIMESTONE, weathered rock, light gray, mixed with brown FAT CLAY (CH), slightly moist							991
5.9				FOSSILIFEROUS LIMESTONE AND CALCAREOUS SHALE, light gray, with occasional mud seams							
10	ROCK UCS = 7,374 psi		Run-1 REC-88% RQD-10%								986
11.9			Run-2 REC-100% RQD-62%	Borehole terminated at 11.9 feet							
15											981
20											976
25											971
30											966
35											961

GROUNDWATER		DATE	DEPTH (FT)	REMARKS
ATD	☒	11/08/2024		Not encountered prior to coring
END OF DRILLING	☒			
AFTER DRILLING	☒			
AFTER DRILLING	☒			

Elevation (Rounded to 0.1 feet), Horizontal (Rounded to 0.1 feet)

GROUNDWATER DEPTHS ARE NOT EXACT AND MAY VARY SUBSTANTIALLY FROM THOSE INDICATED. ATD = AT TIME OF DRILLING
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 AR = Auger Refusal, IGM = Intermediate Geomaterial



Depth:	5.9-11.9 feet
Date:	12/02/2024
Photographer:	Elijah Bacot
Surface Elevation:	995.2
Latitude:	38.028016
Longitude:	-84.509118
Remarks:	Light gray to gray limestone interbedded with shale, occasional mud seams
Box:	Borehole:
1 of 1	B-1034

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FIELD TESTING PROCEDURES

Field Operations: The general field procedures employed by S&ME, Inc. are summarized in ASTM D 420 which is entitled "Investigating and Sampling Soils and Rocks for Engineering Purposes." This recommended practice lists recognized methods for determining soil and rock distribution and ground water conditions. These methods include geophysical and in situ methods as well as borings.

Borings are drilled to obtain subsurface samples using one of several alternate techniques depending upon the subsurface conditions. These techniques are:

- a. Continuous 2-1/2 or 3-1/4 inch I.D. hollow stem augers;
- b. Wash borings using roller cone or drag bits (mud or water);
- c. Continuous flight augers (ASTM D 1425).

These drilling methods are not capable of penetrating through material designated as "refusal materials." Refusal, thus indicated, may result from hard cemented soil, soft weathered rock, coarse gravel or boulders, thin rock seams, or the upper surface of sound continuous rock. Core drilling procedures are required to determine the character and continuity of refusal materials.

The subsurface conditions encountered during drilling are reported on a field test boring record by a field engineer who is on site to direct the drilling operations and log the recovered samples. The record contains information concerning the boring method, samples attempted and recovered, indications of the presence of various materials such as coarse gravel, cobbles, etc., and observations between samples. Therefore, these boring records contain both factual and interpretive information. The field boring records are on file in our office.

The soil and rock samples plus the field boring records are reviewed by a geotechnical engineer. The engineer classifies the soils in general accordance with the procedures outlined in ASTM D 2488 and prepares the final boring records that are the basis for all evaluations and recommendations.

The final boring records represent our interpretation of the contents of the field records based on the results of the engineering examinations and tests of the field samples. These records depict subsurface conditions at the specific locations and at the particular time when drilled. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also, the passage of time may result in a change in the subsurface soil and ground water conditions at these boring locations. The lines designating the interface between soil or refusal materials on the records and on profiles represent approximate boundaries. The transition between materials may be gradual. The final boring records are included with this report. The detailed data collection methods used during this study are discussed on the following pages.

Soil Test Borings: Soil test borings were made at the site at locations shown on the attached Boring Plan. Soil sampling and penetration testing were performed in accordance with ASTM D 1586.

The borings were made by mechanically twisting a 5-5/8" outer diameter auger into the soil. At regular intervals, the drilling tools were removed and samples obtained with a standard 1.4 inch I.D., 2 inch O.D., split tube sampler. The sampler was first seated 6 inches to penetrate any loose cuttings, then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot was recorded and is designated the "penetration resistance".

Representative portions of the samples, thus obtained, were placed in glass jars and transported to the laboratory. In the laboratory, the samples were examined to verify the driller's field classifications. Test Boring Records are attached which graphically show the soil descriptions and penetration resistances.

Soil Auger Soundings: Soil auger soundings were made at the site at the locations shown on the attached Boring Location Plan. The soundings were performed by mechanically twisting a steel auger into the soil. However, unlike the soil test borings, a smaller diameter solid stem auger was used and no split-spoon samples were obtained. The driller provided a general description of the soil encountered by observing the soils brought to the surface by the twisting auger. The auger was advanced until refusal materials were encountered and the refusal depth was noted by the driller. The auger is then withdrawn and the depths to water or caved materials are then measured and recorded by the driller.

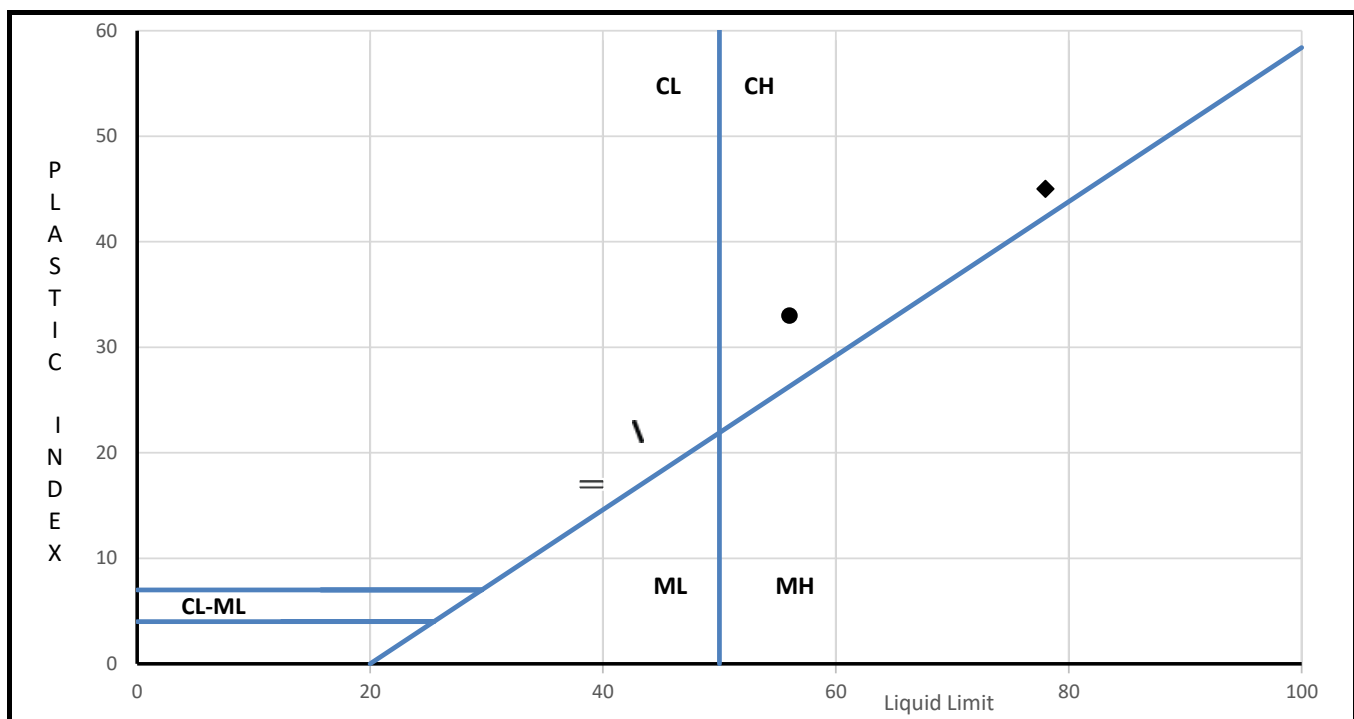
Soil auger soundings provide a rapid, economical method of obtaining the approximate bedrock depth, groundwater depth, and general soil conditions at locations where detailed soil testing and sampling is not required.

Water Level Readings: Water table readings are normally taken in conjunction with borings and are recorded on the "Test Boring Records". These readings indicate the approximate location of the hydrostatic water table at the time of our field investigation. Where impervious soils are encountered (clayey soils) the amount of water seepage into the boring is small, and it is generally not possible to establish the location of the hydrostatic water table through water level readings. The ground water table may also be dependent upon the amount of precipitation at the site during a particular period of time. Fluctuations in the water table should be expected with variations in precipitation, surface run-off, evaporation and other factors.

The time of boring water level reported on the boring records is determined by field crews as the drilling tools are advanced. The time of boring water level is detected by changes in the drilling rate, soil samples obtained, etc. Additional water table readings are generally obtained at least 24 hours after the borings are completed. The time lag of at least 24 hours is used to permit stabilization of the ground water table which has been disrupted by the drilling operations. The readings are taken by dropping a weighted line down the boring or using an electrical probe to detect the water level surface. Occasionally the borings will cave-in, preventing water level readings from being obtained or trapping drilling water above the caved-in zone. The cave-in depth is also measured and recorded on the boring records.



Appendix III – Laboratory Testing Results



Specimen Identification				MC	LL	PL	PI	Fines	Classification (symbol is based on minus 40 material only when no grain size information is present.)	
ID	No.	Top Depth							Symbol	Name
B-1002	SPT-1	1		26.0						
◆ B-1002	SPT-2	3.5		34.4	78	33	45		CH	
B-1002	SPT-3	6		30.5						
● B-1002	SPT-4	8.5		32.7	56	23	33		CH	
B-1007	SS-1	1		5.4						
B-1007	SS-2	3.5		2.7		NP				
B-1007	SS-3	6		1.1						
B-1007	SS-4	8.5		1.3						
B-1007	SS-5	13.5		1.6		NP				
B-1007	SS-6	18.5		3.5						
B-1016	SPT-1	1		20.3						
\ B-1016	UC-1	3.5		22.0	43	21	22		CL	
B-1016	SPT-2	6		22.4						
B-1016	SPT-3	8.5		27.4						
B-1017	SPT-1	1		25.4						
B-1017	SPT-2	3.5		27.7						
B-1017	SPT-3	6		23.5						
B-1018	SS-1	1		26.3						
= B-1018	SS-2	3.5		26.0	39	22	17		CL	
B-1018	SS-3	6		33.0						

INDEX TEST RESULTS					
		Project Name		UK Medical Center Campus Expansion	
		Project Number		24830041	
		Approved by		Date	
				1/15/2025 15:52	
Report No. LEXI_25001579					
Report Date 1/15/2025					

UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS

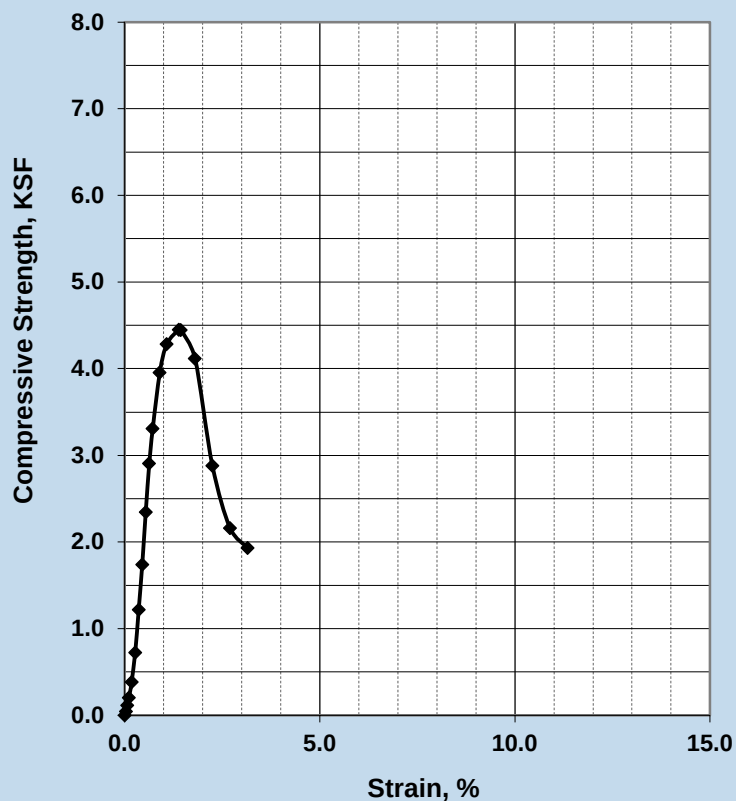


ASTM D2166

S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	12/17/2024
Project Name:	UK Medical Center Expansion	Test Date(s):	12/9/2024
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507		
Type:	UD	Sample Date:	11/15/2024
Location:	B-1016	Depth (ft.):	4.3 - 4.8
Sample Description:	LEAN CLAY (CL), brown		

Unconfined Compressive Strength



Failed Specimen

Type of Sample: IntactSource of Moisture Sample: EntireLiquid Limit: 43Plasticity Index: 22Height to Diameter Ratio: 2.0Rate of Strain (%/min.): 1Strain at Failure: 1.4%Initial Dry Unit Weight: 95.8 pcf Initial Water Content: 22.0%Unconfined Compressive Strength, q_u : **4451** PSFUndrained Shear Strength, s_u : **2225** PSF

References / Comments / Deviations:

Jacob Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS



ASTM D2166

S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.: 24830041 Report Date: 12/17/2024

Project Name: UK Medical Center Expansion Test Date(s): 12/9/2024

Client Name: HDR, Inc.

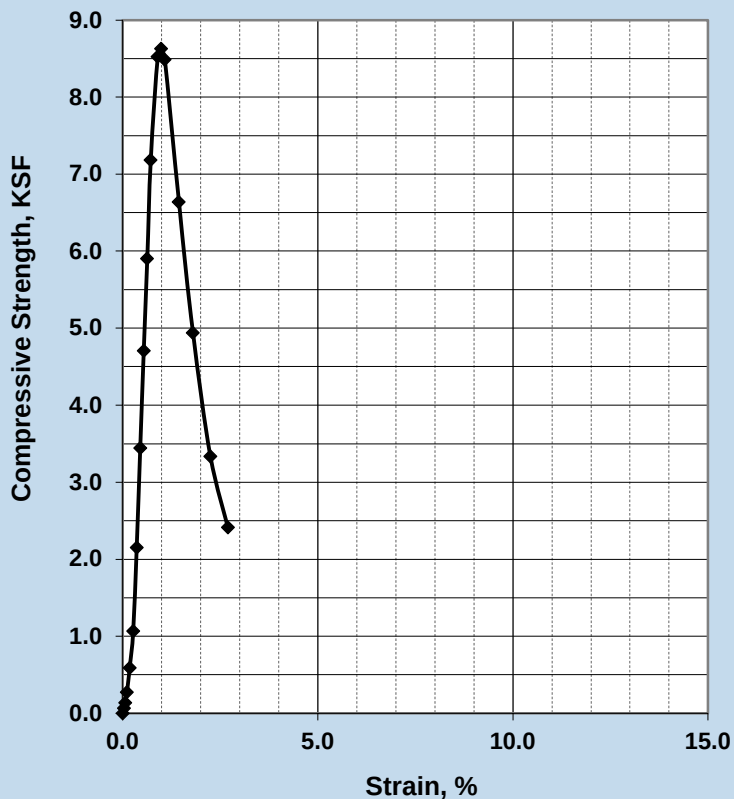
Client Address: 333 W Vine St Suite 1400, Lexington, KY 40507

Type: UD Sample Date: 11/15/2024

Location: B-1023 Depth (ft.): 4.5 - 5.0

Sample Description: FAT CLAY (CH), brown

Unconfined Compressive Strength



Failed Specimen



Type of Sample: Intact

Source of Moisture Sample: Entire

Liquid Limit: 57

Plasticity Index: 33

Height to Diameter Ratio: 2.0

Rate of Strain (%/min.): 1

Strain at Failure: 1%

Initial Dry Unit Weight: 98.9 pcf Initial Water Content: 23.4%

Unconfined Compressive Strength, q_u : 8632 PSFUndrained Shear Strength, s_u : 4316 PSF

References / Comments / Deviations:

Jacob Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS



ASTM D2166

S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.: 24830041 Report Date: 12/17/2024

Project Name: UK Medical Center Expansion Test Date(s): 12/9/2024

Client Name: HDR, Inc.

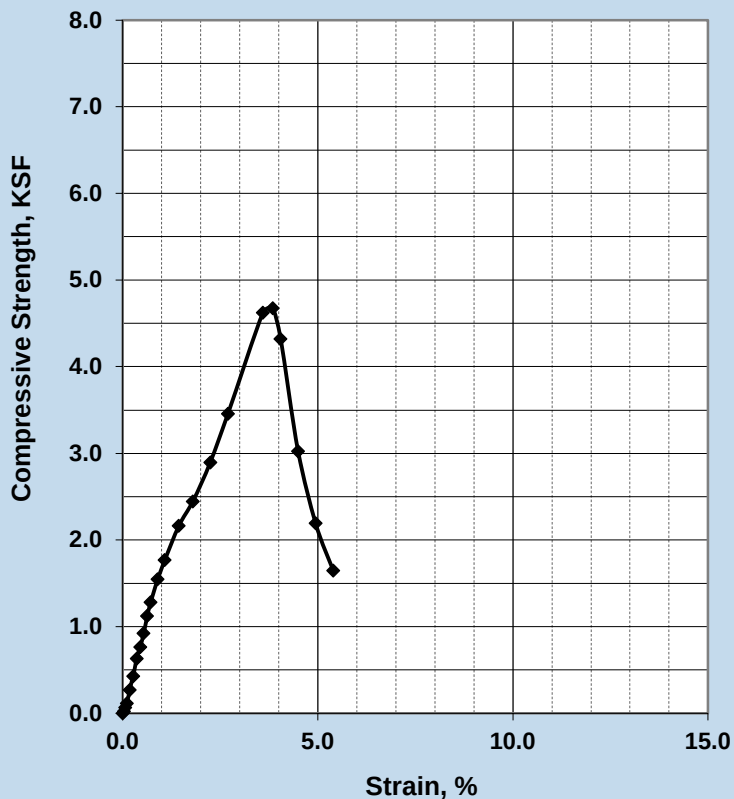
Client Address: 333 W Vine St Suite 1400, Lexington, KY 40507

Type: UD Sample Date: 11/15/2024

Location: B-1032 Depth (ft.): 4.0 - 4.5

Sample Description: LEAN CLAY WITH SAND (CL), brown

Unconfined Compressive Strength



Failed Specimen



Type of Sample: Intact

Source of Moisture Sample: 3/4 Specimen

Liquid Limit: 40

Plasticity Index: 19

Height to Diameter Ratio: 2.0

Rate of Strain (%/min.): 1

Strain at Failure: 3.8%

Initial Dry Unit Weight: 101.0 pcf Initial Water Content: 14.8%

Unconfined Compressive Strength, q_u : 4678 PSFUndrained Shear Strength, s_u : 2339 PSF

References / Comments / Deviations:

Jacob Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS



ASTM D2166

S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.: 24830041 Report Date: 12/17/2024

Project Name: UK Medical Center Expansion Test Date(s): 12/9/2024

Client Name: HDR, Inc.

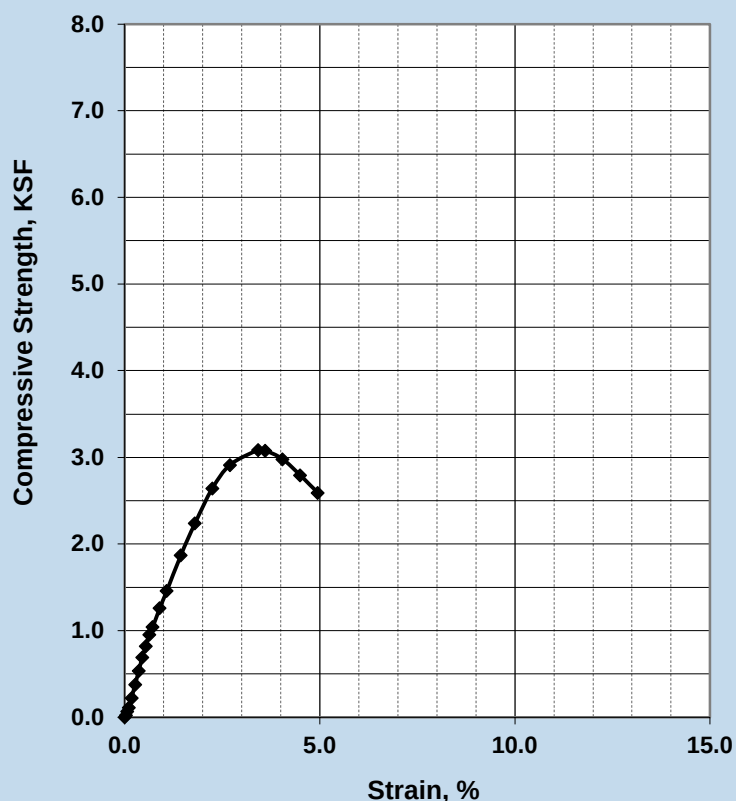
Client Address: 333 W Vine St Suite 1400, Lexington, KY 40507

Type: UD Sample Date: 11/15/2024

Location: B-1033 Depth (ft.): 4.4 - 4.9

Sample Description: FAT CLAY (CH), brown, with oxides

Unconfined Compressive Strength



Failed Specimen



Type of Sample: Intact

Source of Moisture Sample: Entire

Liquid Limit: 52

Plasticity Index: 28

Height to Diameter Ratio: 1.9

Rate of Strain (%/min.): 1

Strain at Failure: 3.4%

Initial Dry Unit Weight: 94.0 pcf Initial Water Content: 29.3%

Unconfined Compressive Strength, q_u : 3084 PSFUndrained Shear Strength, s_u : 1542 PSF

References / Comments / Deviations:

Jacob Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



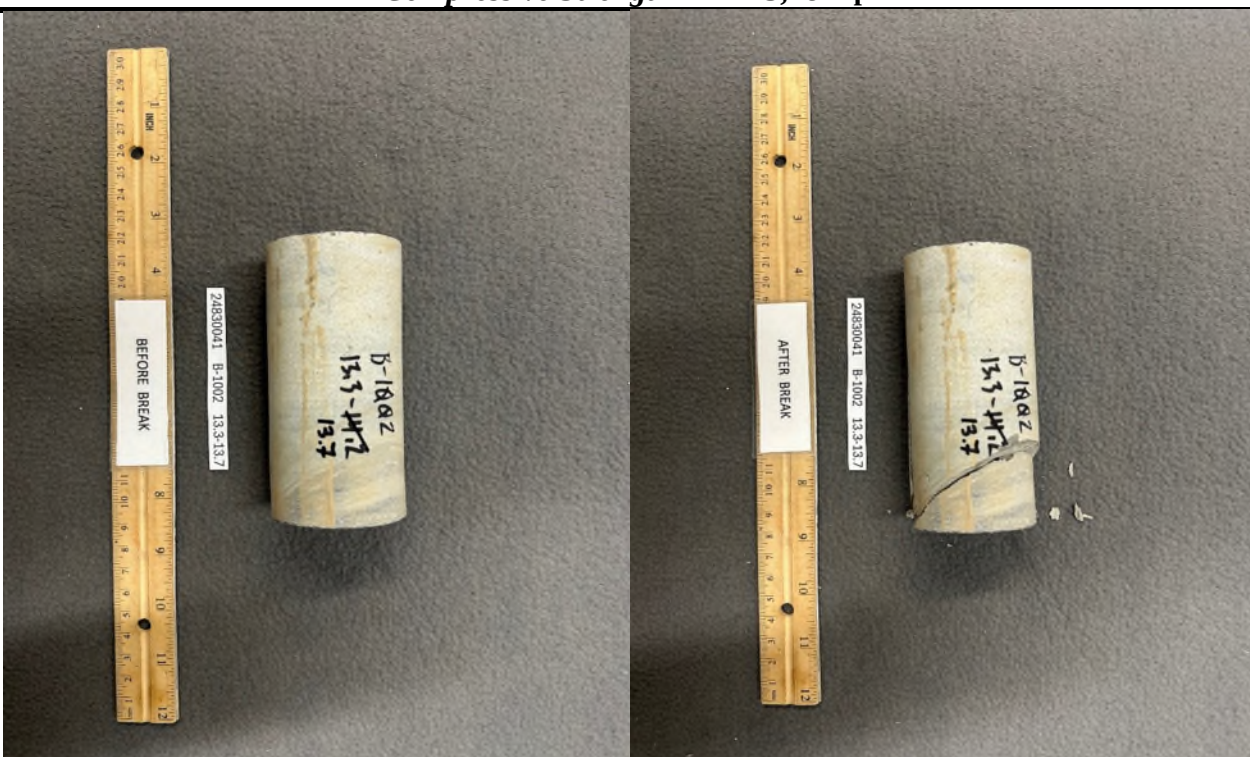
S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1002	Depth, ft:	13.3 - 13.7
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content 0.1 % Dry Unit Weight 166.0 pcf
Compressive Strength 15,284 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1002**Depth, feet: **13.3 - 13.7****Summary of Specimen Tolerances**

Length/diameter target: **MET**

Side straightness target: **MET**

Parallelism target: **MET**

Perpendicularity target: **MET**

Planeness target: **MET**

*ASTM D4543-08 Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance, Section 1.2 - "Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content, chemistry, and other natural geologic processes. As such, it is not always possible to obtain or prepare rock core specimens that satisfy the desirable tolerances given in this practice. Most commonly, this situation presents itself with weaker, more porous, and poorly cemented rock types and rock types containing significant or weak (or both) structural features. For these and other rock types which are difficult to prepare, all reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. However, when it has been determined by trial that this is not possible, the rock specimen will be prepared to the closest tolerance practicable and be considered the best effort and report it as such. If allowable or necessary for the intended test, capping the ends of the specimen as discussed in ASTM D7012 is permitted."

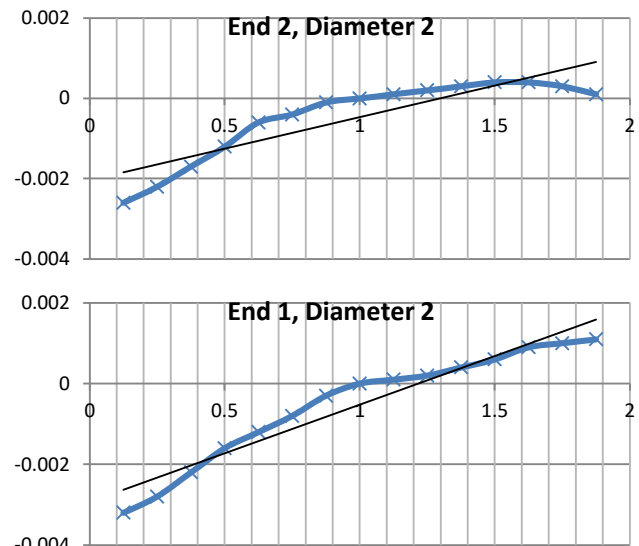
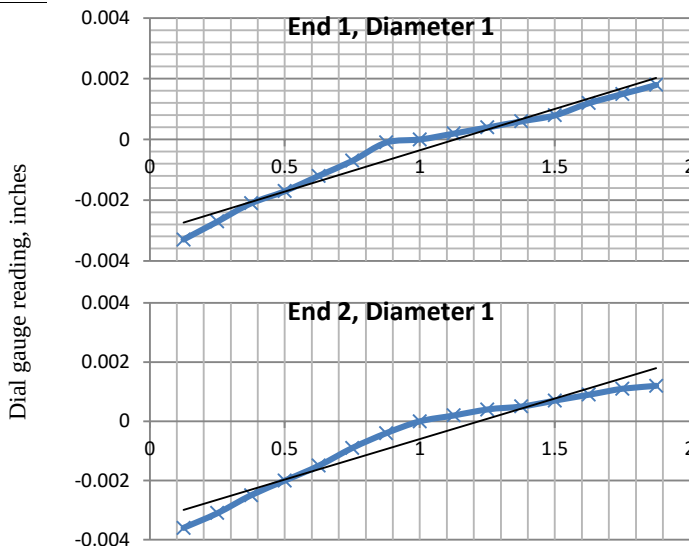
Length to Diameter Ratio

Length, inches: **4.39** Diameter, inches: **1.991**

Ratio: **2.20** length to 1 diameter

Target tolerance: L:D ratio between 2 to 1 and 2.5 to 1**Side Straightness**

Maximum gap between side of core and reference plate, inches: **< .02**

Target tolerance: Maximum gap less than .02 inches**Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001****Target Tolerance: No individually measured point should deviate from the best fit line by more than .001 inches.****Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.16**Slope of End 2, Diameter 1, degrees: **0.16**Slope of End 1, Diameter 2, degrees: **0.14**Slope of End 2, Diameter 2, degrees: **0.09****Target Tolerance: Each diameter perpendicular to the long axis to within 0.25°****Parallelism**Slope difference, Diameter 1, degrees: **0.00**Slope difference, Diameter 2, degrees: **0.05****Target Tolerance: Difference between slopes on each end less than 0.25°****Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **3.27**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C


S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/23/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1002	Depth, ft:	19.4 - 19.8
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.4 %

Dry Unit Weight

163.1 pcf

Compressive Strength

12,944 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1002**Depth, feet: **19.4 - 19.8****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

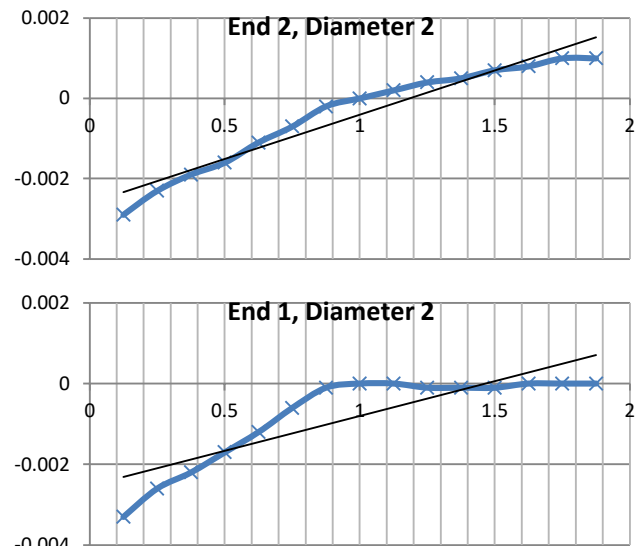
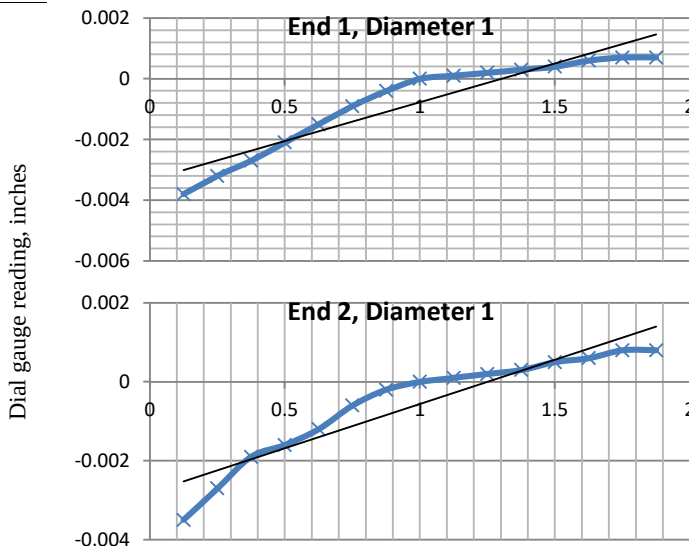
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Length to Diameter RatioLength, inches: **4.39**Diameter, inches: **1.991**

Ratio:

2.20

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.15**Slope of End 2, Diameter 1, degrees: **0.13**Slope of End 1, Diameter 2, degrees: **0.10**Slope of End 2, Diameter 2, degrees: **0.13**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.02**Slope difference, Diameter 2, degrees: **0.03**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **4.13**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1007	Depth, ft:	20.0 - 20.4
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.2 %

Dry Unit Weight

167.5 pcf

Compressive Strength

7,491 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1007**Depth, feet: **20.0 - 20.4****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

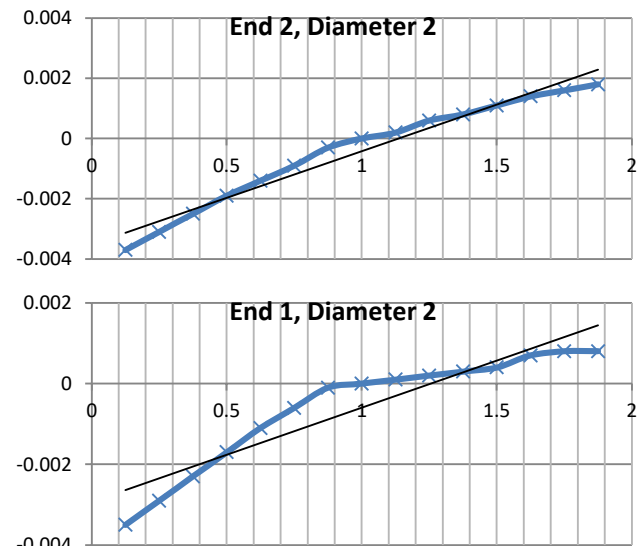
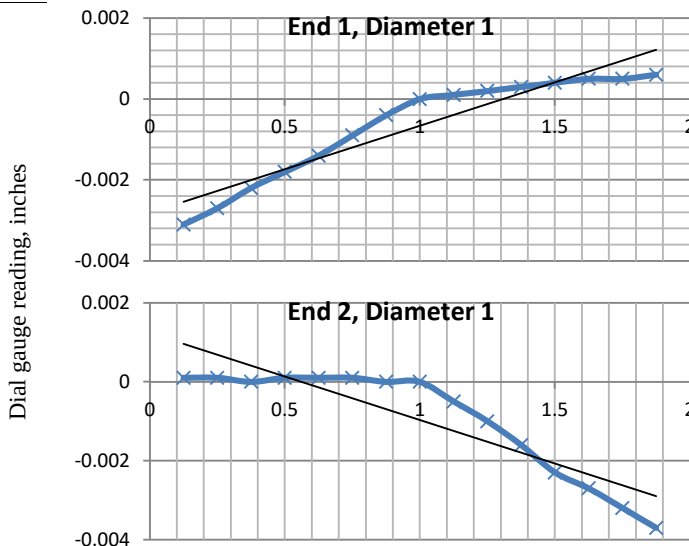
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Length to Diameter RatioLength, inches: **4.35**Diameter, inches: **1.991**

Ratio:

2.18

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.12**Slope of End 2, Diameter 1, degrees: **-0.13**Slope of End 1, Diameter 2, degrees: **0.13**Slope of End 2, Diameter 2, degrees: **0.18**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.25**Slope difference, Diameter 2, degrees: **0.04**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **3.97**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	01/02/25
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1007	Depth, ft:	24.5 - 24.9
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content 1.0 % Dry Unit Weight 163.9 pcf
Compressive Strength 10,223 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom
Technical Responsibility

Jacob Folsom
Signature

Lab Services Manager
Position

1/15/2025
Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1007**Depth, feet: **24.5 - 24.9****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

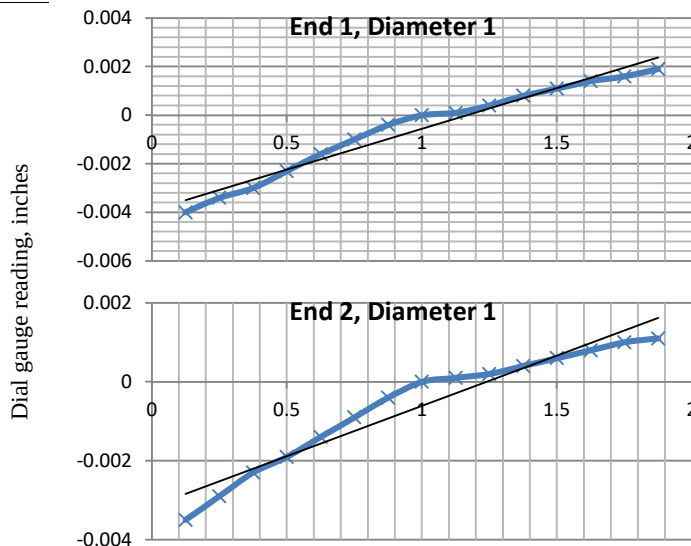
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Length to Diameter RatioLength, inches: **4.43**Diameter, inches: **1.993**

Ratio:

2.22

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.19**Slope of End 2, Diameter 1, degrees: **0.15**Slope of End 1, Diameter 2, degrees: **0.07**Slope of End 2, Diameter 2, degrees: **0.05**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.05**Slope difference, Diameter 2, degrees: **0.02**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **4.15**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1016	Depth, ft:	12.1 - 12.5
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results**Moisture Content****0.8 %****Dry Unit Weight****159.4 pcf****Compressive Strength****12,225 psi****Before Test****After Test**

Strain rate: 0.015 in/min.

Notes / Deviations / References:J. Folsom

Technical Responsibility

Jacob Folsom

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**

Project Name: UK Medical Center Expansion

Location: B-1016

Depth, feet: 12.1 - 12.5

Summary of Specimen Tolerances

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

*ASTM D4543-08 Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance, Section 1.2 - "Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content, chemistry, and other natural geologic processes. As such, it is not always possible to obtain or prepare rock core specimens that satisfy the desirable tolerances given in this practice. Most commonly, this situation presents itself with weaker, more porous, and poorly cemented rock types and rock types containing significant or weak (or both) structural features. For these and other rock types which are difficult to prepare, all reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. However, when it has been determined by trial that this is not possible, the rock specimen will be prepared to the closest tolerance practicable and be considered the best effort and report it as such. If allowable or necessary for the intended test, capping the ends of the specimen as discussed in ASTM D7012 is permitted."

Length to Diameter Ratio

Length, inches: 4.42

Diameter, inches: 1.992

Ratio:

2.22

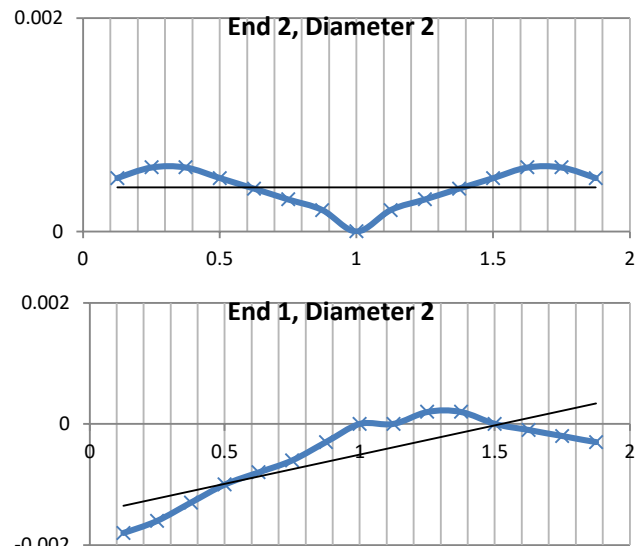
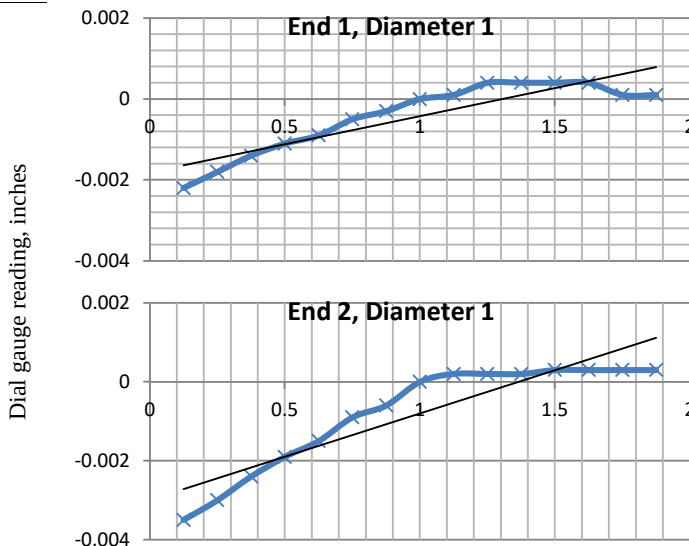
length to 1 diameter

Target tolerance: L:D ratio between 2 to 1 and 2.5 to 1

Side Straightness

Maximum gap between side of core and reference plate, inches: < .02

Target tolerance: Maximum gap less than .02 inches

Planeness**Distance along diameter, inches**

Maximum point-line deviation, inches: < .001

Target Tolerance: No individually measured point should deviate from the best fit line by more than .001 inches.

Perpendicularity

Slope of End 1, Diameter 1, degrees: 0.08

Slope of End 2, Diameter 1, degrees: 0.13

Slope of End 1, Diameter 2, degrees: 0.06

Slope of End 2, Diameter 2, degrees: 0.00

Target Tolerance: Each diameter perpendicular to the long axis to within 0.25°

Parallelism

Slope difference, Diameter 1, degrees: 0.05

Slope difference, Diameter 2, degrees: 0.06

Target Tolerance: Difference between slopes on each end less than 0.25°

Test Information

Strain rate, in/min: 0.015

OR

Stress rate, lbs/sec:

Time to failure, min: 3.63

Temperature: room temperature

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/23/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1016	Depth, ft:	18.4 - 18.8
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.2 %

Dry Unit Weight

166.3 pcf

Compressive Strength

20,997 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Jacob Folsom

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1016**Depth, feet: **18.4 - 18.8****Summary of Specimen Tolerances**

Length/diameter target: **MET**

Side straightness target: **MET**

Parallelism target: **MET**

Perpendicularity target: **MET**

Planeness target: **MET**

*ASTM D4543-08 Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance, Section 1.2 - "Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content, chemistry, and other natural geologic processes. As such, it is not always possible to obtain or prepare rock core specimens that satisfy the desirable tolerances given in this practice. Most commonly, this situation presents itself with weaker, more porous, and poorly cemented rock types and rock types containing significant or weak (or both) structural features. For these and other rock types which are difficult to prepare, all reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. However, when it has been determined by trial that this is not possible, the rock specimen will be prepared to the closest tolerance practicable and be considered the best effort and report it as such. If allowable or necessary for the intended test, capping the ends of the specimen as discussed in ASTM D7012 is permitted."

Length to Diameter Ratio

Length, inches: **4.39** Diameter, inches: **1.993**

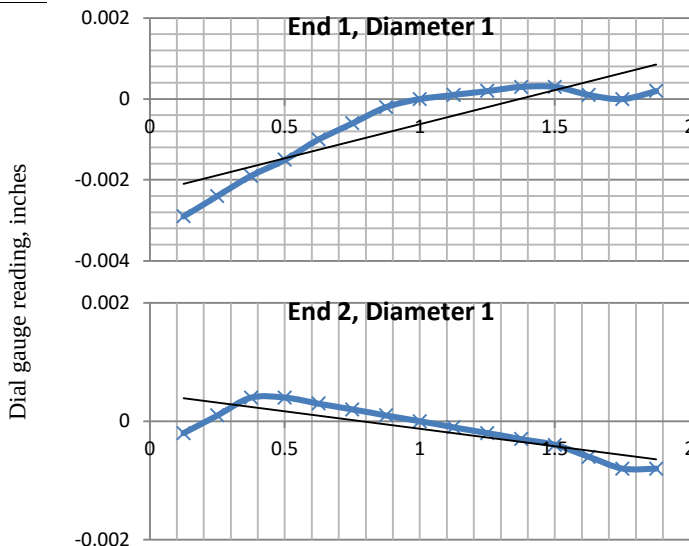
Ratio: **2.20** length to 1 diameter

Target tolerance: L:D ratio between 2 to 1 and 2.5 to 1

Side Straightness

Maximum gap between side of core and reference plate, inches: **< .02**

Target tolerance: Maximum gap less than .02 inches

Planeness**Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**

Target Tolerance: No individually measured point should deviate from the best fit line by more than .001 inches.

PerpendicularitySlope of End 1, Diameter 1, degrees: **0.10**Slope of End 2, Diameter 1, degrees: **-0.03**Slope of End 1, Diameter 2, degrees: **0.15**Slope of End 2, Diameter 2, degrees: **0.15**

Target Tolerance: Each diameter perpendicular to the long axis to within 0.25°

ParallelismSlope difference, Diameter 1, degrees: **0.13**Slope difference, Diameter 2, degrees: **0.00**

Target Tolerance: Difference between slopes on each end less than 0.25°

Test InformationStrain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **5.17**Temperature: **room temperature**

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/23/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1017	Depth, ft:	6.9 - 7.3
Sample Description:	Light Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.1 %

Dry Unit Weight

167.7 pcf

Compressive Strength

14,824 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1017**Depth, feet: **6.9 - 7.3****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

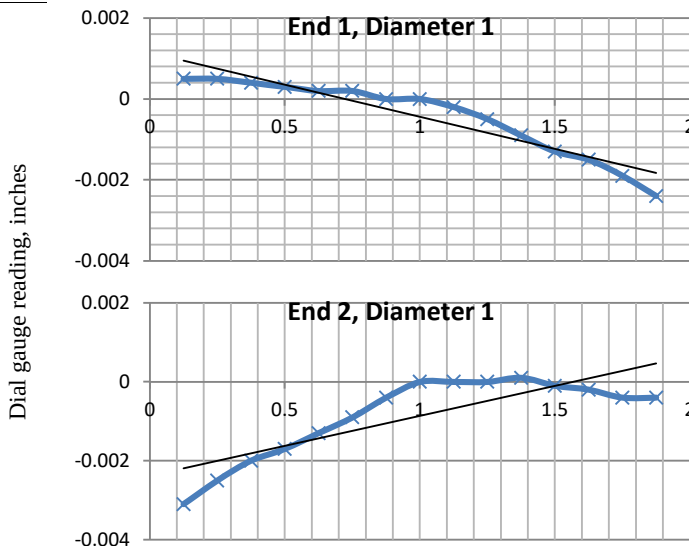
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Length to Diameter RatioLength, inches: **4.36**Diameter, inches: **1.989**

Ratio:

2.19

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **-0.09**Slope of End 2, Diameter 1, degrees: **0.09**Slope of End 1, Diameter 2, degrees: **0.07**Slope of End 2, Diameter 2, degrees: **-0.07**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.18**Slope difference, Diameter 2, degrees: **0.15**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **4.05**Temperature: **room temperature**

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1017	Depth, ft:	14.0 - 14.4
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.3 %

Dry Unit Weight

163.2 pcf

Compressive Strength

9,970 psi



Before Test



After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1017**Depth, feet: **14.0 - 14.4****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

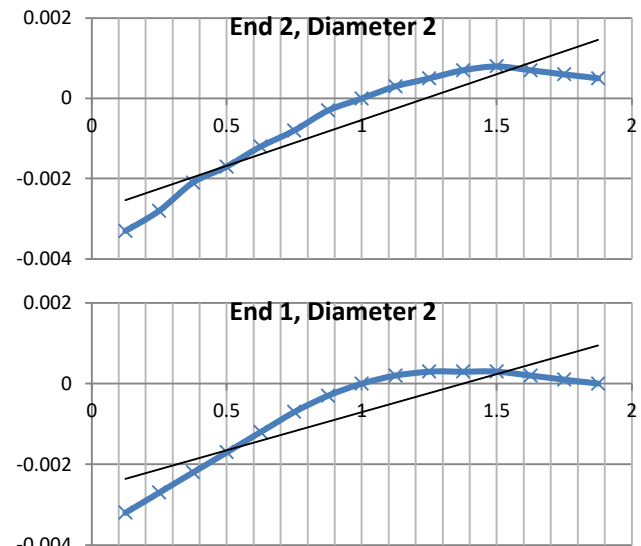
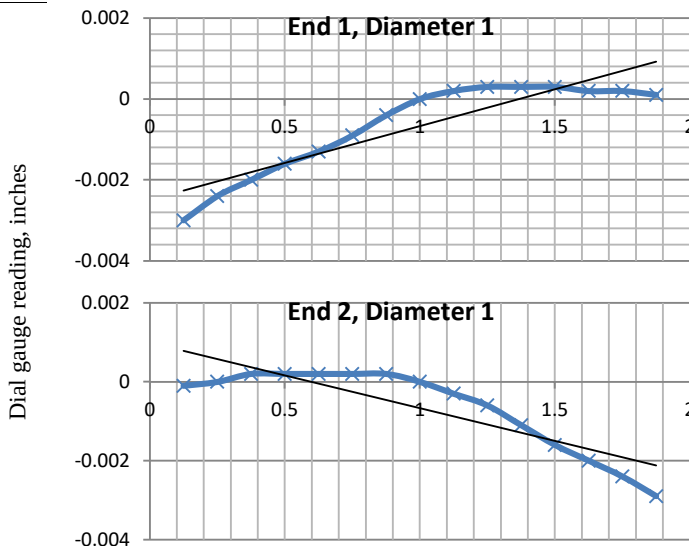
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Length to Diameter RatioLength, inches: **4.42**Diameter, inches: **1.992**

Ratio:

2.22

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.10**Slope of End 2, Diameter 1, degrees: **-0.10**Slope of End 1, Diameter 2, degrees: **0.11**Slope of End 2, Diameter 2, degrees: **0.13**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.20**Slope difference, Diameter 2, degrees: **0.02**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **3.37**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/23/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1018	Depth, ft:	14.7 - 15.1
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.5 %

Dry Unit Weight

160.6 pcf

Compressive Strength

15,734 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

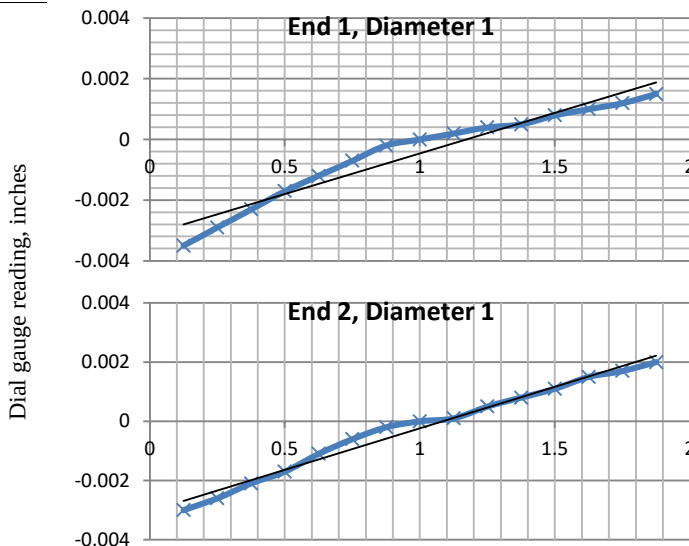
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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1018**Depth, feet: **14.7 - 15.1****Summary of Specimen Tolerances**Length/diameter target: **MET**Perpendicularity target: **MET**Side straightness target: **MET**Planeness target: **MET**Parallelism target: **MET**

*ASTM D4543-08 Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance, Section 1.2 - "Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content, chemistry, and other natural geologic processes. As such, it is not always possible to obtain or prepare rock core specimens that satisfy the desirable tolerances given in this practice. Most commonly, this situation presents itself with weaker, more porous, and poorly cemented rock types and rock types containing significant or weak (or both) structural features. For these and other rock types which are difficult to prepare, all reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. However, when it has been determined by trial that this is not possible, the rock specimen will be prepared to the closest tolerance practicable and be considered the best effort and report it as such. If allowable or necessary for the intended test, capping the ends of the specimen as discussed in ASTM D7012 is permitted."

Length to Diameter RatioLength, inches: **4.45** Diameter, inches: **1.987**Ratio: **2.24** length to 1 diameterTarget tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.15**Slope of End 2, Diameter 1, degrees: **0.16**Slope of End 1, Diameter 2, degrees: **0.03**Slope of End 2, Diameter 2, degrees: **0.03**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.01**Slope difference, Diameter 2, degrees: **0.00**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **4.35**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	01/02/25
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1019	Depth, ft:	12.4 - 12.8
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.3 %

Dry Unit Weight

162.3 pcf

Compressive Strength

10,507 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1019**Depth, feet: **12.4 - 12.8****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

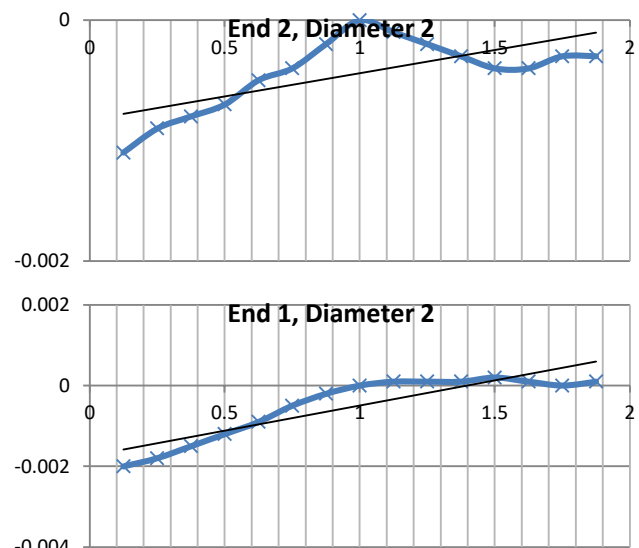
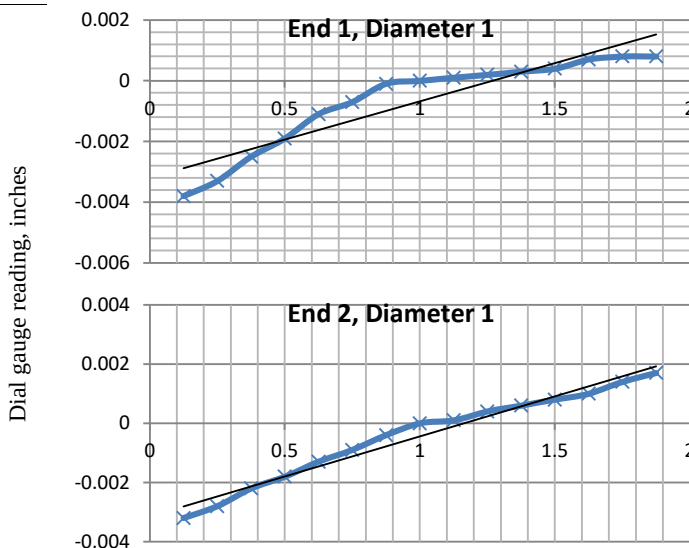
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Length to Diameter RatioLength, inches: **4.44**Diameter, inches: **1.990**

Ratio:

2.23

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.14**Slope of End 2, Diameter 1, degrees: **0.16**Slope of End 1, Diameter 2, degrees: **0.07**Slope of End 2, Diameter 2, degrees: **0.02**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.01**Slope difference, Diameter 2, degrees: **0.05**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **3.93**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1023	Depth, ft:	9.1 - 9.5
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.2 %

Dry Unit Weight

163.4 pcf

Compressive Strength

10,784 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1024	Depth, ft:	20.4 - 20.8
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

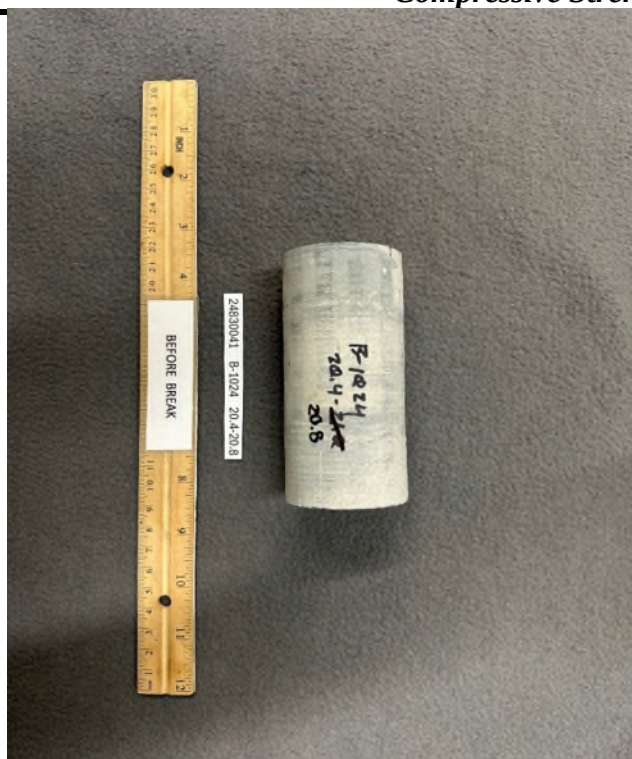
0.2 %

Dry Unit Weight

165.0 pcf

Compressive Strength

23,328 psi



Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Jacob Folsom

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1024**Depth, feet: **20.4 - 20.8****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

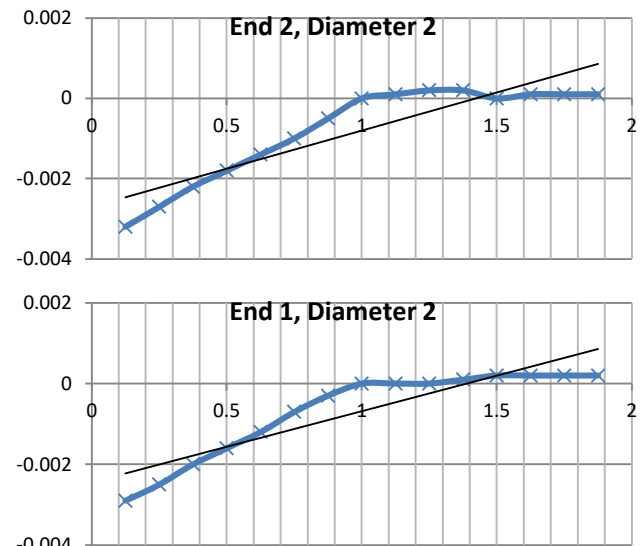
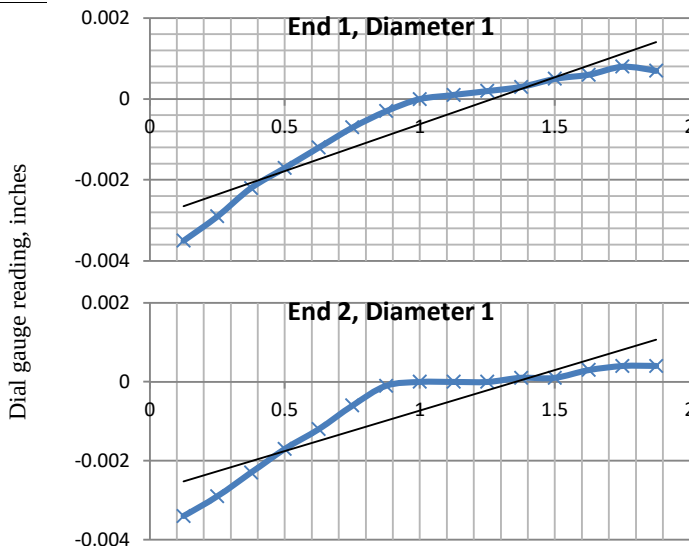
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Length to Diameter RatioLength, inches: **4.44**Diameter, inches: **1.977**

Ratio:

2.24

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.13**Slope of End 2, Diameter 1, degrees: **0.12**Slope of End 1, Diameter 2, degrees: **0.10**Slope of End 2, Diameter 2, degrees: **0.11**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.02**Slope difference, Diameter 2, degrees: **0.01**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **5.47**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	01/02/25
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1024	Depth, ft:	25.8 - 26.2
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

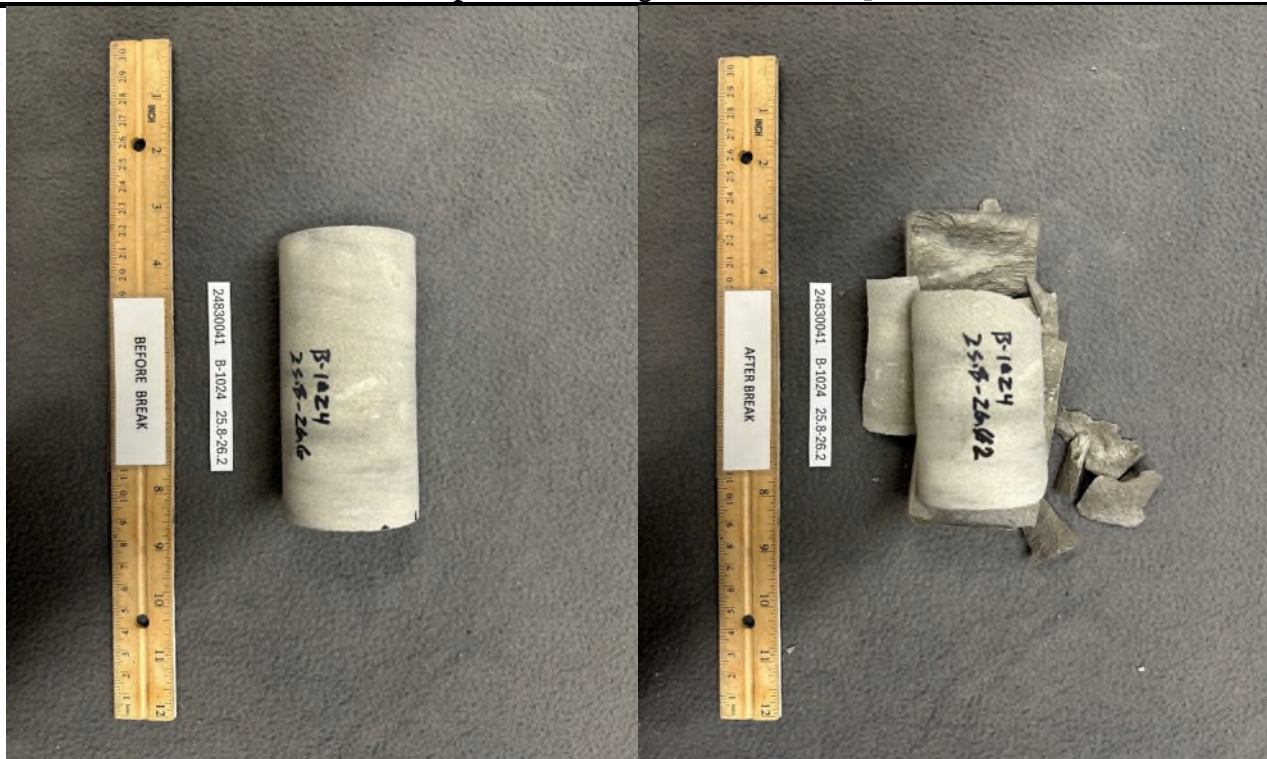
0.6 %

Dry Unit Weight

161.8 pcf

Compressive Strength

7,335 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1024**Depth, feet: **25.8 - 26.2****Summary of Specimen Tolerances**

Length/diameter target: **MET**

Side straightness target: **MET**

Parallelism target: **MET**

Perpendicularity target: **MET**

Planeness target: **MET**

*ASTM D4543-08 Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance, Section 1.2 - "Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content, chemistry, and other natural geologic processes. As such, it is not always possible to obtain or prepare rock core specimens that satisfy the desirable tolerances given in this practice. Most commonly, this situation presents itself with weaker, more porous, and poorly cemented rock types and rock types containing significant or weak (or both) structural features. For these and other rock types which are difficult to prepare, all reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. However, when it has been determined by trial that this is not possible, the rock specimen will be prepared to the closest tolerance practicable and be considered the best effort and report it as such. If allowable or necessary for the intended test, capping the ends of the specimen as discussed in ASTM D7012 is permitted."

Length to Diameter Ratio

Length, inches: **4.42** Diameter, inches: **1.971**

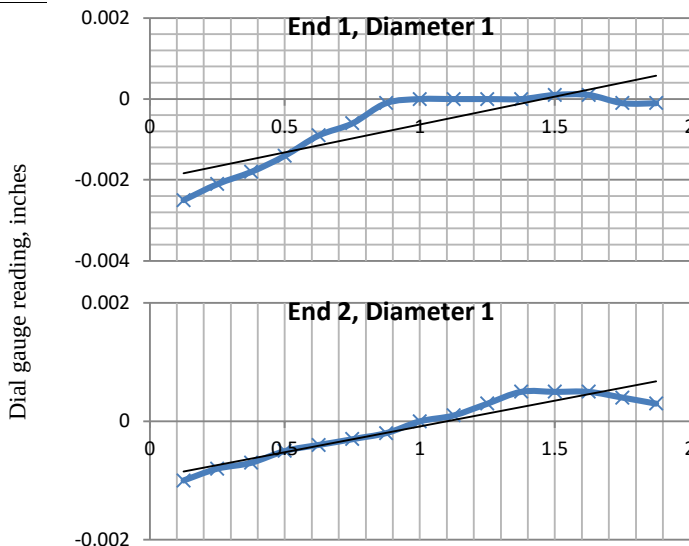
Ratio: **2.24** length to 1 diameter

Target tolerance: L:D ratio between 2 to 1 and 2.5 to 1

Side Straightness

Maximum gap between side of core and reference plate, inches: **< .02**

Target tolerance: Maximum gap less than .02 inches

Planeness**Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**

Target Tolerance: No individually measured point should deviate from the best fit line by more than .001 inches.

ParallelismSlope difference, Diameter 1, degrees: **0.03**Slope difference, Diameter 2, degrees: **0.01**

Target Tolerance: Difference between slopes on each end less than 0.25°

PerpendicularitySlope of End 1, Diameter 1, degrees: **0.08**Slope of End 2, Diameter 1, degrees: **0.05**Slope of End 1, Diameter 2, degrees: **0.14**Slope of End 2, Diameter 2, degrees: **0.14**

Target Tolerance: Each diameter perpendicular to the long axis to within 0.25°

Test InformationStrain rate, in/min: **0.015**

OR

Stress rate, lbs/sec:

Time to failure, min: **9.13**Temperature: **room temperature**

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1025	Depth, ft:	9.4 - 9.8
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.3 %

Dry Unit Weight

166.2 pcf

Compressive Strength

8,571 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1025**Depth, feet: **9.4 - 9.8****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

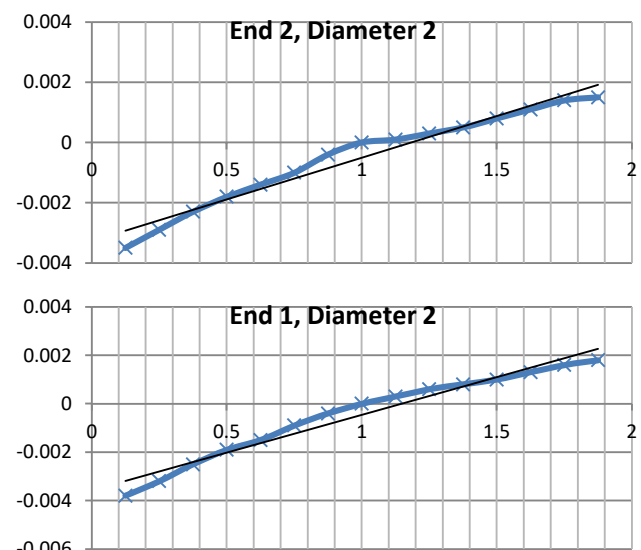
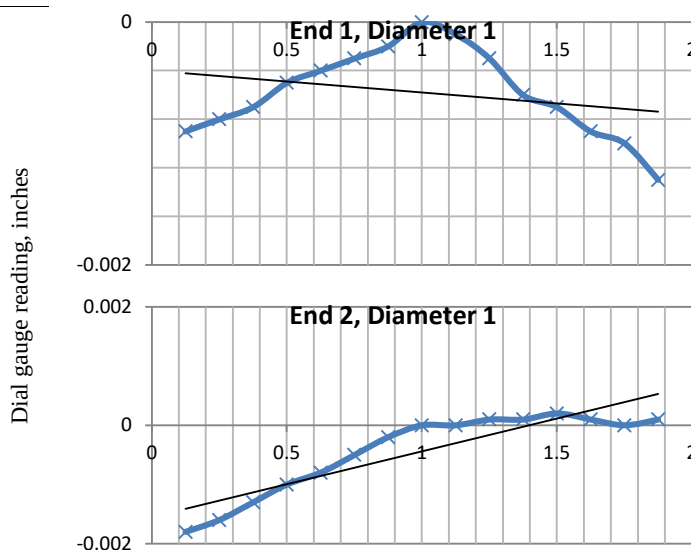
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Length to Diameter RatioLength, inches: **4.41**Diameter, inches: **1.991**

Ratio:

2.22

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **-0.01**Slope of End 2, Diameter 1, degrees: **0.06**Slope of End 1, Diameter 2, degrees: **0.18**Slope of End 2, Diameter 2, degrees: **0.16**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.07**Slope difference, Diameter 2, degrees: **0.02**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **4.8**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C


S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1025	Depth, ft:	15.9 - 16.3
Sample Description:	Light Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.3 %

Dry Unit Weight

163.1 pcf

Compressive Strength

8,998 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1025**Depth, feet: **15.9 - 16.3****Summary of Specimen Tolerances**

Length/diameter target: **MET**

Side straightness target: **MET**

Parallelism target: **MET**

Perpendicularity target: **MET**

Planeness target: **MET**

*ASTM D4543-08 Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance, Section 1.2 - "Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content, chemistry, and other natural geologic processes. As such, it is not always possible to obtain or prepare rock core specimens that satisfy the desirable tolerances given in this practice. Most commonly, this situation presents itself with weaker, more porous, and poorly cemented rock types and rock types containing significant or weak (or both) structural features. For these and other rock types which are difficult to prepare, all reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. However, when it has been determined by trial that this is not possible, the rock specimen will be prepared to the closest tolerance practicable and be considered the best effort and report it as such. If allowable or necessary for the intended test, capping the ends of the specimen as discussed in ASTM D7012 is permitted."

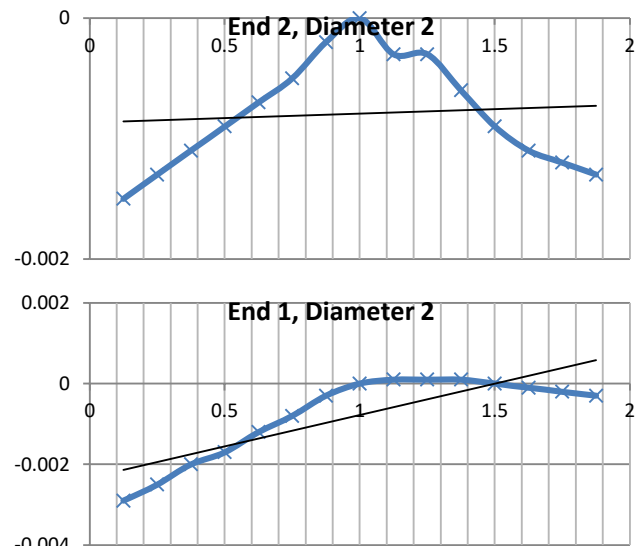
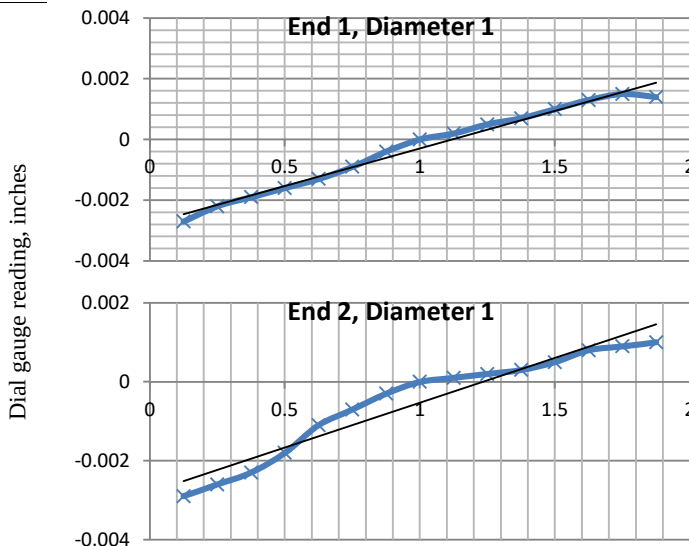
Length to Diameter Ratio

Length, inches: **4.42** Diameter, inches: **1.992**

Ratio: **2.22** length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**

Maximum gap between side of core and reference plate, inches: **< .02**

Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.14**Slope of End 2, Diameter 1, degrees: **0.13**Slope of End 1, Diameter 2, degrees: **0.09**Slope of End 2, Diameter 2, degrees: **0.00**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.01**Slope difference, Diameter 2, degrees: **0.08**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **3.43**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	01/02/25
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1026	Depth, ft:	9.0 - 9.4
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.5 %

Dry Unit Weight

160.9 pcf

Compressive Strength

8,654 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1026**Depth, feet: **9.0 - 9.4****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

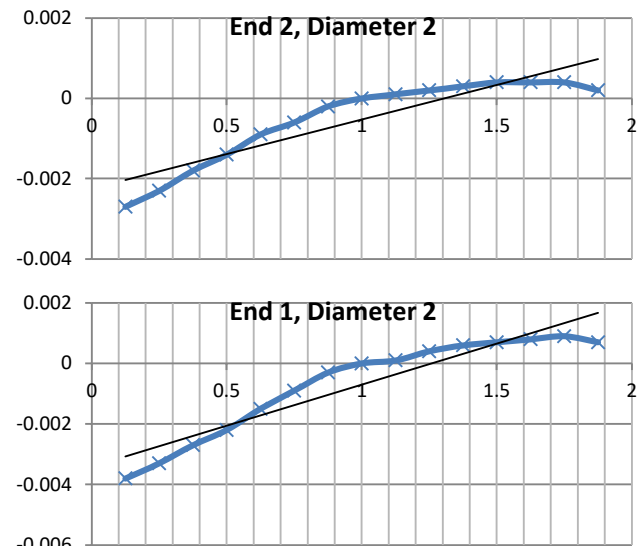
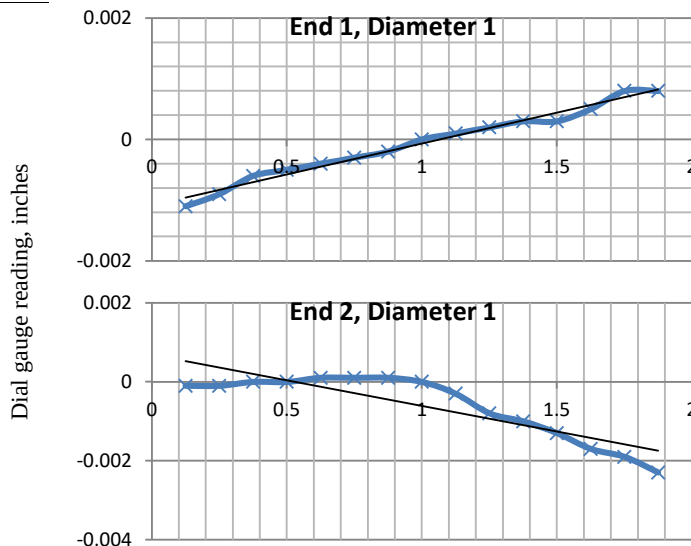
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Length to Diameter RatioLength, inches: **4.42**Diameter, inches: **1.980**

Ratio:

2.23

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.06**Slope of End 2, Diameter 1, degrees: **-0.07**Slope of End 1, Diameter 2, degrees: **0.16**Slope of End 2, Diameter 2, degrees: **0.10**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.13**Slope difference, Diameter 2, degrees: **0.06**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **2.82**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	01/02/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1026	Depth, ft:	13.5 - 13.9
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

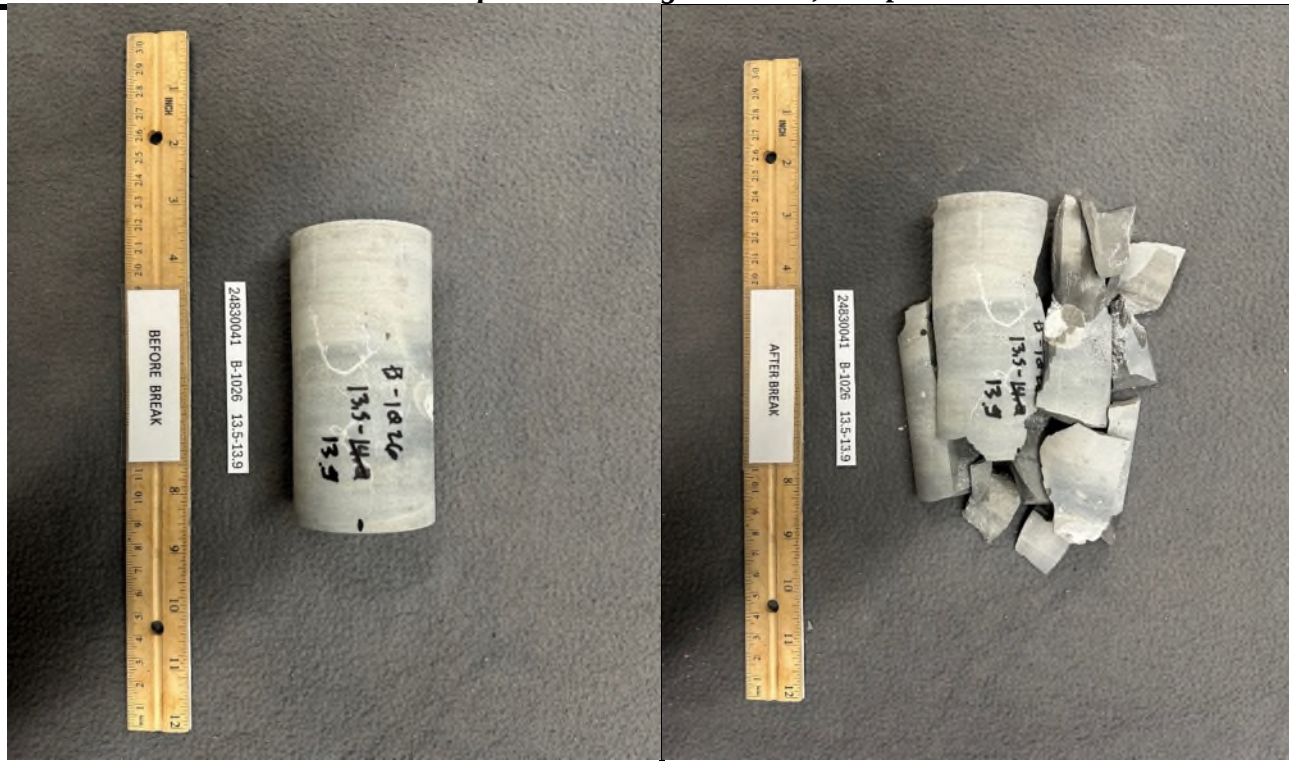
0.6 %

Dry Unit Weight

160.1 pcf

Compressive Strength

17,354 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1026**Depth, feet: **13.5 - 13.9****Summary of Specimen Tolerances**

Length/diameter target: **MET**

Side straightness target: **MET**

Parallelism target: **MET**

Perpendicularity target: **MET**

Planeness target: **MET**

*ASTM D4543-08 Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance, Section 1.2 - "Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content, chemistry, and other natural geologic processes. As such, it is not always possible to obtain or prepare rock core specimens that satisfy the desirable tolerances given in this practice. Most commonly, this situation presents itself with weaker, more porous, and poorly cemented rock types and rock types containing significant or weak (or both) structural features. For these and other rock types which are difficult to prepare, all reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. However, when it has been determined by trial that this is not possible, the rock specimen will be prepared to the closest tolerance practicable and be considered the best effort and report it as such. If allowable or necessary for the intended test, capping the ends of the specimen as discussed in ASTM D7012 is permitted."

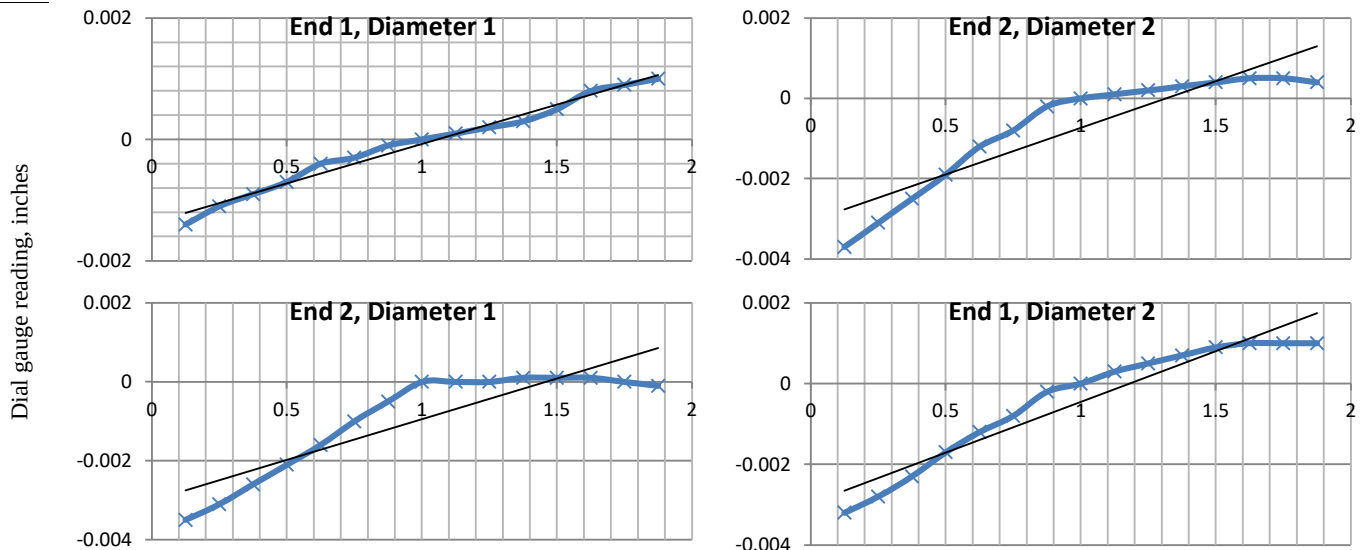
Length to Diameter Ratio

Length, inches: **4.38** Diameter, inches: **1.976**

Ratio: **2.22** length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**

Maximum gap between side of core and reference plate, inches: **< .02**

Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.07**Slope of End 2, Diameter 1, degrees: **0.12**Slope of End 1, Diameter 2, degrees: **0.14**Slope of End 2, Diameter 2, degrees: **0.13**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.04**Slope difference, Diameter 2, degrees: **0.01**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **3.77**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/23/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1028	Depth, ft:	14.2 - 14.6
Sample Description:	Light Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.1 %

Dry Unit Weight

165.0 pcf

Compressive Strength

11,770 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1028**Depth, feet: **14.2 - 14.6****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

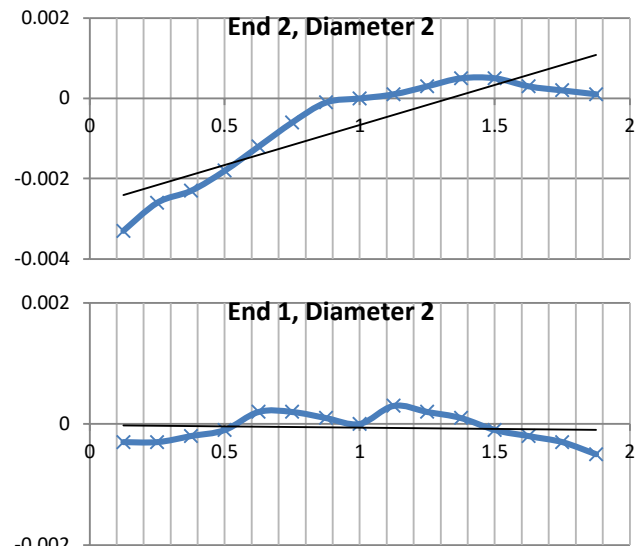
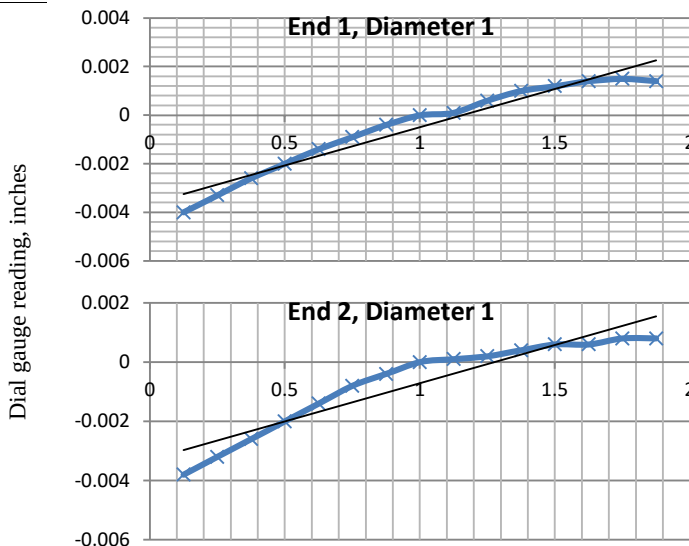
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Length to Diameter RatioLength, inches: **4.43**Diameter, inches: **1.989**

Ratio:

2.23

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.18**Slope of End 2, Diameter 1, degrees: **0.15**Slope of End 1, Diameter 2, degrees: **0.00**Slope of End 2, Diameter 2, degrees: **0.11**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.03**Slope difference, Diameter 2, degrees: **0.12**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **3.82**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1029	Depth, ft:	9.5 - 9.9
Sample Description:	Light Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.2 %

Dry Unit Weight

165.3 pcf

Compressive Strength

10,408 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1029**Depth, feet: **9.5 - 9.9****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

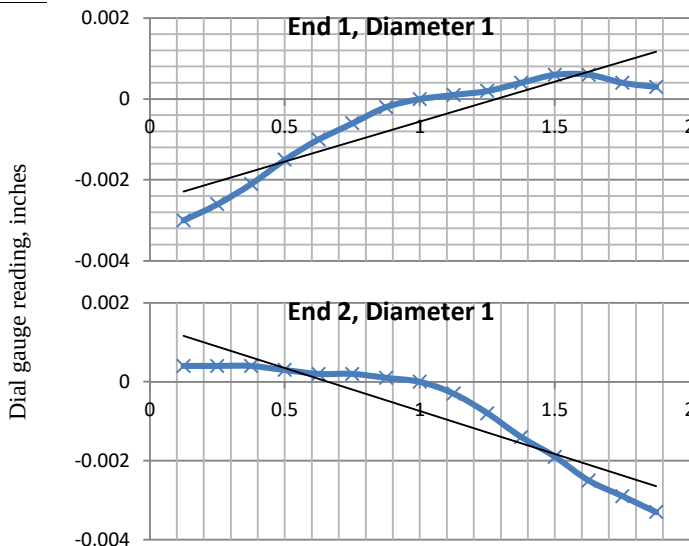
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Length to Diameter RatioLength, inches: **4.19**Diameter, inches: **1.986**

Ratio:

2.11

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.11**Slope of End 2, Diameter 1, degrees: **-0.12**Slope of End 1, Diameter 2, degrees: **0.10**Slope of End 2, Diameter 2, degrees: **-0.15**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.24**Slope difference, Diameter 2, degrees: **0.25**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **3.53**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1031	Depth, ft:	7.4 - 7.8
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.2 %

Dry Unit Weight

166.2 pcf

Compressive Strength

10,188 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1031**Depth, feet: **7.4 - 7.8****Summary of Specimen Tolerances**

Length/diameter target: **MET**

Side straightness target: **MET**

Parallelism target: **MET**

Perpendicularity target: **MET**

Planeness target: **MET**

*ASTM D4543-08 Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance, Section 1.2 - "Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content, chemistry, and other natural geologic processes. As such, it is not always possible to obtain or prepare rock core specimens that satisfy the desirable tolerances given in this practice. Most commonly, this situation presents itself with weaker, more porous, and poorly cemented rock types and rock types containing significant or weak (or both) structural features. For these and other rock types which are difficult to prepare, all reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. However, when it has been determined by trial that this is not possible, the rock specimen will be prepared to the closest tolerance practicable and be considered the best effort and report it as such. If allowable or necessary for the intended test, capping the ends of the specimen as discussed in ASTM D7012 is permitted."

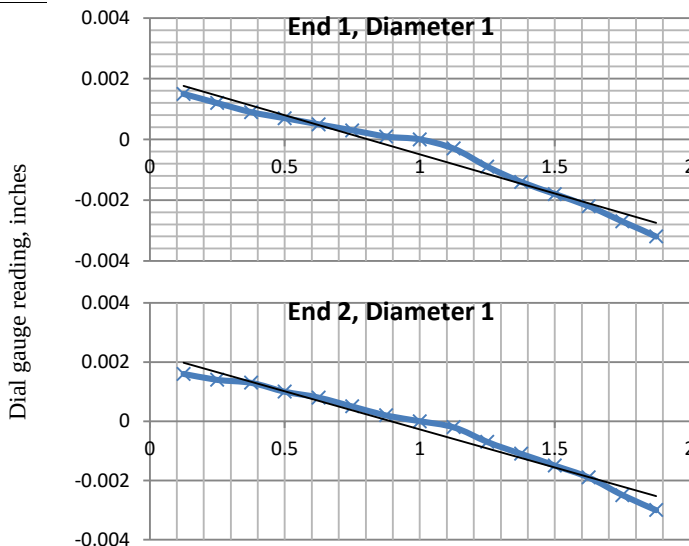
Length to Diameter Ratio

Length, inches: **4.22** Diameter, inches: **1.978**

Ratio: **2.13** length to 1 diameter

Target tolerance: L:D ratio between 2 to 1 and 2.5 to 1**Side Straightness**

Maximum gap between side of core and reference plate, inches: **< .02**

Target tolerance: Maximum gap less than .02 inches**Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001****Target Tolerance: No individually measured point should deviate from the best fit line by more than .001 inches.****Perpendicularity**Slope of End 1, Diameter 1, degrees: **-0.15**Slope of End 2, Diameter 1, degrees: **-0.15**Slope of End 1, Diameter 2, degrees: **0.07**Slope of End 2, Diameter 2, degrees: **-0.07****Target Tolerance: Each diameter perpendicular to the long axis to within 0.25°****Parallelism**Slope difference, Diameter 1, degrees: **0.00**Slope difference, Diameter 2, degrees: **0.14****Target Tolerance: Difference between slopes on each end less than 0.25°****Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **3.03**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/24
Project Name:	UK Medical Center Expansion	Test Date(s):	12/27/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1032	Depth, ft:	13.8 - 14.2
Sample Description:	Light Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results**Moisture Content****0.9 %****Dry Unit Weight****158.1 pcf****Compressive Strength****11,600 psi****Before Test****After Test**

Strain rate: 0.015 in/min.

Notes / Deviations / References:J. Folsom

Technical Responsibility

Jacob Folsom

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1032**Depth, feet: **13.8 - 14.2****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

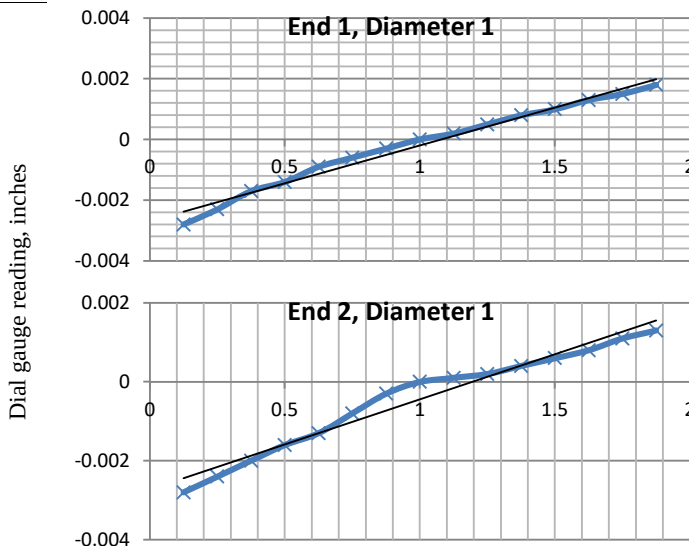
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Length to Diameter RatioLength, inches: **4.43**Diameter, inches: **1.990**

Ratio:

2.23

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.14**Slope of End 2, Diameter 1, degrees: **0.13**Slope of End 1, Diameter 2, degrees: **0.14**Slope of End 2, Diameter 2, degrees: **0.12**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.01**Slope difference, Diameter 2, degrees: **0.02**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **5.3**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/24
Project Name:	UK Medical Center Expansion	Test Date(s):	12/31/24
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1033	Depth, ft:	8.2 - 8.6
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.4 %

Dry Unit Weight

163.1 pcf

Compressive Strength

8,622 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Jacob Folsom

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**Project Name: **UK Medical Center Expansion**Location: **B-1033**Depth, feet: **8.2 - 8.6****Summary of Specimen Tolerances**

Length/diameter target:

MET

Perpendicularity target:

MET

Side straightness target:

MET

Planeness target:

MET

Parallelism target:

MET

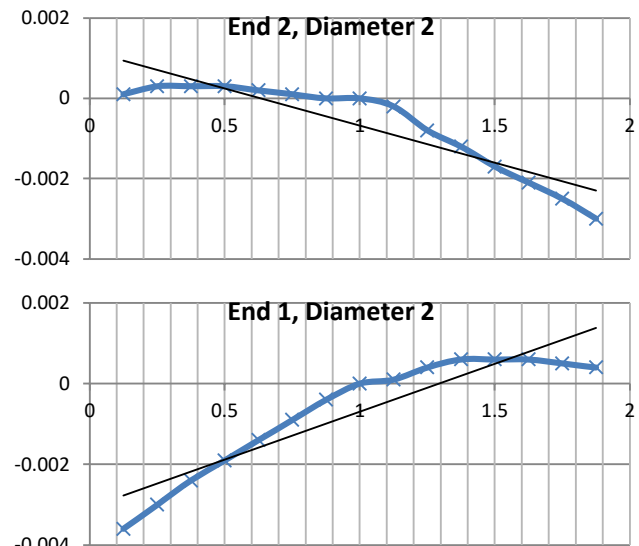
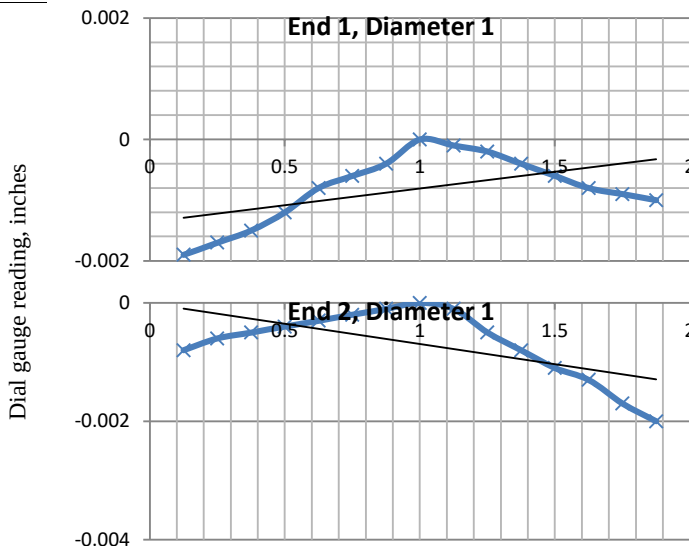
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Length to Diameter RatioLength, inches: **4.31**Diameter, inches: **1.993**

Ratio:

2.17

length to 1 diameter

Target tolerance: *L:D ratio between 2 to 1 and 2.5 to 1***Side Straightness**Maximum gap between side of core and reference plate, inches: **< .02**Target tolerance: *Maximum gap less than .02 inches***Planeness****Distance along diameter, inches**Maximum point-line deviation, inches: **< .001**Target Tolerance: *No individually measured point should deviate from the best fit line by more than .001 inches.***Perpendicularity**Slope of End 1, Diameter 1, degrees: **0.03**Slope of End 2, Diameter 1, degrees: **-0.04**Slope of End 1, Diameter 2, degrees: **0.14**Slope of End 2, Diameter 2, degrees: **-0.11**Target Tolerance: *Each diameter perpendicular to the long axis to within 0.25°***Parallelism**Slope difference, Diameter 1, degrees: **0.07**Slope difference, Diameter 2, degrees: **0.24**Target Tolerance: *Difference between slopes on each end less than 0.25°***Test Information**Strain rate, in/min: **0.015****OR**

Stress rate, lbs/sec:

Time to failure, min: **3.37**Temperature: **room temperature***This report shall not be reproduced, except in full, without the written approval of S&ME, Inc.*

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK

ASTM D7012 Method C



S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505

Project No.:	24830041	Report Date:	01/08/25
Project Name:	UK Medical Center Expansion	Test Date(s):	01/02/25
Client Name:	HDR, Inc.		
Client Address:	333 W Vine St Suite 1400, Lexington, KY 40507	Received Date:	11/15/24
Location:	B-1034	Depth, ft:	10.4 - 10.7
Sample Description:	Gray Limestone		

Angle of load relative to lithology: Approximately perpendicular

Test Results

Moisture Content

0.4 %

Dry Unit Weight

164.8 pcf

Compressive Strength

7,374 psi



Before Test

After Test

Strain rate: 0.015 in/min.

Notes / Deviations / References:

J. Folsom

Technical Responsibility

Signature

Lab Services Manager

Position

1/15/2025

Date

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UNIAXIAL COMPRESSIVE STRENGTH**OF ROCK**

ASTM D 7012 Method C

**S&ME, Inc. - Lexington: 2020 Liberty Road, Suite 105, Lexington, KY 40505**

Project Name: UK Medical Center Expansion

Location: B-1034

Depth, feet: 10.4 - 10.7

Summary of Specimen Tolerances

Length/diameter target: **BEST AVAILABLE**Perpendicularity target: **MET**Side straightness target: **MET**Planeness target: **CAPPED**Parallelism target: **CAPPED**

*ASTM D4543-08 Standard Practice for Preparing Rock Core as Cylindrical Test Specimens and Verifying Conformance to Dimensional and Shape Tolerance, Section 1.2 - "Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content, chemistry, and other natural geologic processes. As such, it is not always possible to obtain or prepare rock core specimens that satisfy the desirable tolerances given in this practice. Most commonly, this situation presents itself with weaker, more porous, and poorly cemented rock types and rock types containing significant or weak (or both) structural features. For these and other rock types which are difficult to prepare, all reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. However, when it has been determined by trial that this is not possible, the rock specimen will be prepared to the closest tolerance practicable and be considered the best effort and report it as such. If allowable or necessary for the intended test, capping the ends of the specimen as discussed in ASTM D7012 is permitted."

Length to Diameter Ratio		Side Straightness	
Length, inches:	3.78	Diameter, inches:	1.995
Ratio:	1.89	length to 1 diameter	
Target tolerance: L:D ratio between 2 to 1 and 2.5 to 1		Maximum gap between side of core and reference plate, inches: < .02	
		Target tolerance: Maximum gap less than .02 inches	

Planeness

Dial gauge reading, inches

Not Applicable - Capped

Distance along diameter, inches		Parallelism	
Maximum point-line deviation, inches:	NA	Slope difference, Diameter 1, degrees:	NA-
Target Tolerance: No individually measured point should deviate from the best fit line by more than .001 inches.		Slope difference, Diameter 2, degrees:	CAPPED
		Target Tolerance: Difference between slopes on each end less than 0.25°	
Perpendicularity		Test Information	
Slope of End 1, Diameter 1, degrees:	NA	Strain rate, in/min:	0.015
Slope of End 2, Diameter 1, degrees:	NA	OR	
Slope of End 1, Diameter 2, degrees:	NA	Stress rate, lbs/sec:	
Slope of End 2, Diameter 2, degrees:	NA	Time to failure, min:	4.47
Target Tolerance: Each diameter perpendicular to the long axis to within 0.25°		Temperature:	room temperature

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LABORATORY TESTING PROCEDURES

Soil Classification: Soil classifications provide a general guide to the engineering properties of various soil types and enable the engineer to apply past experience to current problems. In our investigations, samples obtained during drilling operations are examined in our laboratory and visually classified by an engineer. The soils are classified according to consistency (based on number of blows from standard penetration tests), color and texture. These classification descriptions are included on our "Test Boring Records."

The classification system discussed above is primarily qualitative and for detailed soil classification two laboratory tests are necessary: grain size tests and plasticity tests. Using these test results the soil can be classified according to the AASHTO or Unified Classification Systems (ASTM D 2487). Each of these classification systems and the in-place physical soil properties provides an index for estimating the soil's behavior. The soil classification and physical properties obtained are presented in this report.

Compaction Tests: Compaction tests are run on representative soil samples to determine the dry density obtained by a uniform compactive effort at varying moisture contents. The results of the test are used to determine the moisture content and unit weight desired in the field for similar soils. Proper field compaction is necessary to decrease future settlements, increase the shear strength of the soil and decrease the permeability of the soil.

The two most commonly used compaction tests are the Standard Proctor test and the Modified Proctor test. They are performed in accordance with ASTM D 698 and D 1557, respectively. Generally, the Standard Proctor compaction test is run on samples from building or parking areas where small compaction equipment is anticipated. The Modified compaction test is generally performed for heavy structures, highways, and other areas where large compaction equipment is expected. In both tests a representative soil sample is placed in a mold and compacted with a compaction hammer. Both tests have three alternate methods.

Test	Method	Hammer Wt./Fall	Mold Diam.	Run on Material Finer Than	No. of Layers	No. of Blows/Layer
Standard D 698	A	5.5 lb./12"	4"	No. 4 sieve	3	25
	B	5.5 lb./12"	4"	3/8" sieve	3	25
	C	5.5 lb./12"	6"	3/4" sieve	3	56

Test	Method	Hammer Wt./Fall	Mold Diam.	Run on Material Finer Than	No. of Layers	No. of Blows/Layer
Standard D 1557	A	10 lb./18"	4"	No. 4 sieve	5	25
	B	10 lb./18"	4"	3/8" sieve	5	25
	C	10 lb./18"	6"	3/4" sieve	5	56

The moisture content and unit weight of each compacted sample is determined. Usually 4 to 5 such tests are run at different moisture contents. Test results are presented in the form of a dry unit weight versus moisture content curve. The compaction method used and any deviations from the recommended procedures are noted in this report.

Atterberg Limits: Portions of the samples are taken for Atterberg Limits testing to determine the plasticity characteristics of the soil. The plasticity index (PI) is the range of moisture content over which the soil deforms as a plastic material. It is bracketed by the liquid limit (LL) and the plastic limit (PL). The liquid limit is the moisture content at which the soil becomes sufficiently "wet" to flow as a heavy viscous fluid. The plastic limit is the lowest moisture content at which the soil is sufficiently plastic to be manually rolled into tiny threads. The liquid limit and plastic limit are determined in accordance with ASTM D 4318.

Moisture Content: The Moisture Content is determined according to ASTM D 2216.