

APPENDIX E
CREDENTIALS

Tracie A. Ragland

SENIOR SCIENTIST

PROFESSIONAL EXPERIENCE

Ms. Ragland is a Senior Scientist and Authorized Project Reviewer in Terracon's Lenexa, KS office. Ms. Ragland has over 20 years of environmental due diligence experience and performs various duties including Phase I Environmental Site Assessments (Phase I ESAs) and limited asbestos inspections. Ms. Ragland has management responsibility of Phase I ESAs within the Environmental Due Diligence Group (DDG) at Terracon. Duties include oversight of projects, technical review of client deliverables, and mentoring of Phase I ESA personnel. Ms. Ragland is an Environmental Professional (as defined in 40 CFR 312) for Phase I ESAs, and has also served as Acting Group Manager of the DDG on several occasions. Ms. Ragland's primary responsibilities include conducting all aspects of Phase I ESAs including proposal/scope preparation, field work, interpretation of Phase I ESA research, and production of client deliverables. Ms. Ragland has also conducted wetland delineations and has assisted in National Environmental Policy Act (NEPA) Reviews/Environmental Assessments (EAs) and Limited Site Investigations (LSIs).

Phase I ESAs: Ms. Ragland has conducted and managed numerous Phase I ESAs for over 20 years throughout the continental US on properties ranging from less than 1 acre to 8,000 acres in size, including undeveloped land, farmland, communications towers, multi-family residential structures, medical facilities, large-scale commercial developments, gasoline stations, vehicle maintenance facilities, industrial/manufacturing sites, printing facilities, dry cleaners, agricultural cooperatives, offices/warehouses, and Brownfields Assessment sites.

Asbestos Inspections and Sampling: In conjunction with Phase I ESAs, Ms. Ragland has conducted limited asbestos inspections and sampling of properties including multi-family residential structures, office buildings, retail malls, commercial developments, and heavy industrial sites in KS and MO. Ms. Ragland has also served as site monitor on asbestos school abatement projects in KS performing air monitoring sampling and observation services during asbestos removal activities, including non-friable visual clearance inspections.

Wetland Delineations: Ms. Ragland has conducted and managed wetland delineation and assisted in permitting projects in KS and MO, including: coordination with the US Army Corps of Engineers (USACE), report preparation for Section 404 Clean Water Act (CWA) regulatory permitting, wetland mitigation site construction observation, and wetland mitigation monitoring. Ms. Ragland has delineated sites from 1 to 8,000 acres utilizing mandatory technical criteria and field indicators established by regional supplements to the USACE delineation manual.

NEPA Reviews/EAs: Ms. Ragland has conducted NEPA Reviews for existing and proposed communications towers and a fiber optic cable corridor. Ms. Ragland has assisted with preparation of EAs for a proposed marina at a USACE lake, two USDA Natural Resources Conservation Service (NRCS) dam reconstruction sites, a Dept. of Energy (DOE)-sponsored proposed battery/energy storage facility, and a Dept. of Veterans Affairs (VA) cemetery expansion. Ms. Ragland was responsible for field work, contact with federal, state, and local government agencies, coordination of Cultural Resource Investigations, and production of client deliverables. Ms. Ragland has also completed HUD Form 4128 "Environmental Assessment and Compliance Finding for Related Laws" documenting compliance with NEPA for residential properties during preparation of Phase I ESAs.

LSIs/Preliminary Assessment (PA)/Site Inspection (SI): Ms. Ragland has conducted and managed LSIs including a PA/SI on a former government WWII facility. Responsibilities included preparation of work scopes, collection of soil and groundwater samples, interpretation of analytical results, and preparation of client deliverables.

EDUCATION

Bachelor of Arts, Honors in Environmental Studies, University of Kansas, 1997

Bachelor of Science in Biology, Cellular Biology, University of Kansas, 1992

CERTIFICATIONS

40-Hour Hazardous Waste Site Operations Training

AHERA, Asbestos Inspector: KS

Certified Asbestos Inspector: MO

AFFILIATIONS

Society of Wetland Scientists (SWS), 1999-2016

University of Kansas (Edwards Campus) Professional Science Masters – Environmental Assessment External Advisory Board Member, 2012-2018

University of Kansas (Edwards Campus) Environmental Industry Board Member, 2019-2022

WORK HISTORY

Terracon Consultants, Inc., Senior Scientist: 2019-present
Project Scientist: 2016-2019
Project Manager: 2008-2016
Environmental Scientist: 1998-2008

University of Kansas, Research Assistant, 1994-98

University of Minnesota, Graduate Research Assistant, 1993-94

Oklahoma State University, Laboratory Technician, 1992-93

ADDITIONAL COURSES

ASTM Training on Phase I & II ESAs for Commercial Real Estate 2017, ASTM

Regional Supplement Seminar, Wetland Training Institute (WTI), 2008

Nationwide Permits, WTI, 2008; SWS, 2000

Dormant Season Wetland Plant Identification, Institute of Botanical Training, LLC, 2007

Wetland Construction and Restoration, WTI, 2001

Wetland Plant Identification, Biotic Consultants, Inc., 2000

Basic Processes in Hydric Soils, North Carolina State University, 2000

38-Hour Army Corps of Engineers Wetland Delineation & Management Training Program, Richard Chinn Environmental Training, Inc., 1998

Madeleine Quick

Assistant Scientist

PROFESSIONAL EXPERIENCE

Madeleine Quick is an Assistant Environmental Scientist in Terracon's Lenexa office. Ms. Quick assists with Phase I site assessments by visiting site locations, compiling comprehensive photo logs of sites, interviewing site owners and staff, analyzing and describing historical maps of the site, and tabulating and preparing data for written reports in accordance with safety rules, guidelines, and standards.

Ms. Quick participates in pre-task planning and is responsible for maintaining quality standards on all projects. She is trained in recognizing and reporting on potentially hazardous environmental conditions within various types of sites and assists in making recommendations to the client on tests and procedures that should follow up these findings.

PROJECT EXPERIENCE

Dobbs Auto – St. Louis, MO (2023)

Provided site research for a team conducting Phase I ESAs at 18 store locations throughout the St. Louis Metro. Researched historical information about the site and conducted a records review. These findings were presented to the client as part of a final report.

Dollar General Stores – Grain Valley, MO and Peculiar, MO (2023)

Performed site reconnaissance for Phase I ESAs at two vacant grass lots, which are the proposed locations for two new stores. Prepared final report and prepared for it to be presented to the client.

Apartment Building – Kansas City, MO (2023)

Performed field work on a team that conducted a Phase I ESA on behalf of St. Luke's Health System. Helped prepare final report, which was presented to the client. The site consisted of one parcel, approximately 2,157 square feet in size and was developed with a two-story residential apartment building of approximately 2,600 square feet, with four rental units, that is currently partially occupied, and was built in 1918.

Proposed Contractor Storage – Shawnee, KS (2023)

Performed site reconnaissance for a Phase I ESA on 7.16 acres of vacant land, which is the proposed location of a new contractor storage facility. Helped prepare final report, which was presented to the client. The site consisted of undeveloped land covered by dense vegetation, and the southern portion maintained an engineered concrete swale with running water.

McDonalds – Leavenworth, KS (2023)

Performed field work on a team that conducted a Phase I ESA at a developed, eight-unit strip mall building and parking lot. Helped prepare final report, which was presented to the client.

City of Belton – Belton, MO

Performed site reconnaissance for a Phase I ESA on 23 acres of land that is currently developed with six warehouse-like structures and was at the time utilized by the City of Belton as a City maintenance and storage lot. Helped prepare final report, which was presented to the client.

Joe's Kansas City BBQ – Kansas City, KS (2023)

Performed field work on a team that conducted a Phase I ESA of an approximately 8,000 square-foot building and associated parking areas. Helped prepare final report, which was presented to the client. The site was at the time occupied by a printing press. Joe's Kansas City BBQ was exploring the possibility of purchasing the site. Upon assessment, several Recognized Environmental Conditions (REC) were identified due to the long-term use of the site as a printing facility.



EDUCATION

Bachelor of Science,
Environmental Studies,
University of Kansas

Associate of Science, Liberal
Arts, Johnson County
Community College

APPENDIX F
DESCRIPTION OF TERMS AND ACRONYMS

Description of Selected General Terms and Acronyms

Term/Acronym	Description
ACM	<p>Asbestos Containing Material. Asbestos is a naturally occurring mineral, three varieties of which (chrysotile, amosite, crocidolite) have been commonly used as fireproofing or binding agents in construction materials. Exposure to asbestos, as well as ACM, has been documented to cause lung diseases including asbestosis (scarring of the lung), lung cancer and mesothelioma (a cancer of the lung lining).</p> <p>Regulatory agencies have generally defined ACM as a material containing greater than one (1) percent asbestos, however some states (e.g., California) define ACM as materials having 0.1% asbestos. In order to define a homogenous material as non-ACM, a minimum number of samples must be collected from the material dependent upon its type and quantity. Homogenous materials defined as non-ACM must either have 1) no asbestos identified in all of its samples or 2) an identified asbestos concentration below the appropriate regulatory threshold. Asbestos concentrations are generally determined using polarized light microscopy or transmission electron microscopy. Point counting is an analytical method to statistically quantify the percentage of asbestos in a sample. The asbestos component of ACM may either be friable or non-friable. Friable materials, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure and have a higher potential for a fiber release than non-friable ACM. Non-friable ACM are materials that are firmly bound in a matrix by plastic, cement, etc. and, if handled carefully, will not become friable.</p> <p>Federal and state regulations require that either all suspect building materials be presumed ACM or that an asbestos survey be performed prior to renovation, dismantling, demolition, or other activities that may disturb potential ACM. Notifications are required prior to demolition and/or renovation activities that may impact the condition of ACM in a building. ACM removal may be required if the ACM is likely to be disturbed or damaged during the demolition or renovation. Abatement of friable or potentially friable ACM must be performed by a licensed abatement contractor in accordance with state rules and NESHAP. Additionally, OSHA regulations for work classification, worker training and worker protection will apply.</p>
AHERA	Asbestos Hazard Emergency Response Act
AST	Aboveground Storage Tanks. ASTs are generally described as storage tanks less than 10% of which are below ground (i.e., buried). Tanks located in a basement, but not buried, are also considered ASTs. Whether, and the extent to which, an AST is regulated, is determined on a case-by-case basis and depends upon tank size, its contents and the jurisdiction of its location.
BGS	Below Ground Surface

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Term/Acronym	Description
Brownfields	State and/or tribal listing of Brownfield properties addressed by Cooperative Agreement Recipients or Targeted Brownfields Assessments.
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes. BTEX are VOC components found in gasoline and commonly used as analytical indicators of a petroleum hydrocarbon release.
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (a.k.a. Superfund). CERCLA is the federal act that regulates abandoned or uncontrolled hazardous waste sites. Under this Act, joint and several liability may be imposed on potentially responsible parties for cleanup-related costs.
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System. An EPA compilation of sites having suspected or actual releases of hazardous substances to the environment. CERCLIS also contains information on site inspections, preliminary assessments and remediation of hazardous waste sites. These sites are typically reported to EPA by states and municipalities or by third parties pursuant to CERCLA Section 103.
CESQG	Conditionally Exempt Small Quantity Generators
CFR	Code of Federal Regulations
CREC	Controlled Recognized Environmental Condition is defined in ASTM E1527-21 as “a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority) , with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). A condition considered by the environmental professional to be a controlled recognized environmental condition shall be listed in the findings section of the Phase I Environmental Site Assessment report, and as a recognized environmental condition in the conclusions section of the Phase I Environmental Site Assessment report.”
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
ERNS	Emergency Response Notification System. An EPA-maintained federal database which stores information on notifications of oil discharges and hazardous substance releases in quantities greater than the applicable reportable quantity under CERCLA. ERNS is a cooperative data-sharing effort between EPA, DOT, and the National Response Center.
ESA	Environmental Site Assessment

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Term/Acronym	Description
FRP	Fiberglass Reinforced Plastic
Hazardous Substance	<p>As defined under CERCLA, this is (A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title; (C) any hazardous waste having characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (with some exclusions); (D) any toxic pollutant listed under section 1317(a) of Title 33; (E) any hazardous air pollutant listed under section 112 of the Clean Air Act; and (F) any imminently hazardous chemical substance or mixture with respect to which the EPA Administrator has taken action under section 2606 of Title 15. This term does not include petroleum, including crude oil or any fraction thereof which is not otherwise listed as a hazardous substance under subparagraphs (A) through (F) above, and the term include natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).</p>
Hazardous Waste	<p>This is defined as having characteristics identified or listed under section 3001 of the Solid Waste Disposal Act (with some exceptions). RCRA, as amended by the Solid Waste Disposal Act of 1980, defines this term as a “solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.”</p>
HREC	<p>Historical Recognized Environmental Condition is defined in ASTM E1527-21 as “a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a historical recognized environmental condition, the environmental professional must determine whether the past release is a recognized environmental condition at the time of the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a recognized environmental condition at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a recognized environmental condition.”</p>

Description of Selected General Terms and Acronyms

Term/Acronym	Description
IC/EC	A listing of sites with institutional and/or engineering controls in place. IC include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls. EC include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.
ILP	Innocent Landowner/Operator Program
LOG	Large Quantity Generators
LUST	Leaking Underground Storage Tank. This is a federal term set forth under RCRA for leaking USTs. Some states also utilize this term.
MCL	Maximum Contaminant Level. This Safe Drinking Water concept (and also used by many states as a ground water cleanup criteria) refers to the limit on drinking water contamination that determines whether a supplier can deliver water from a specific source without treatment.
MSDS	Material Safety Data Sheets. Written/printed forms prepared by chemical manufacturers, importers and employers which identify the physical and chemical traits of hazardous chemicals under OSHA's Hazard Communication Standard.
NESHAP	National Emissions Standard for Hazardous Air Pollutants (Federal Clean Air Act). This part of the Clean Air Act regulates emissions of hazardous air pollutants.
NFRAP	Facilities where there is "No Further Remedial Action Planned," as more particularly described under the Records Review section of this report.
NOV	Notice of Violation. A notice of violation or similar citation issued to an entity, company or individual by a state or federal regulatory body indicating a violation of applicable rule or regulations has been identified.
NPDES	National Pollutant Discharge Elimination System (Clean Water Act). The federal permit system for discharges of polluted water.
NPL	The NPL is the EPA's database of uncontrolled or abandoned hazardous waste facilities that have been listed for priority remedial actions under the Superfund Program.
OSHA	Occupational Safety and Health Administration or Occupational Safety and Health Act

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Term/Acronym	Description
PACM	Presumed Asbestos-Containing Material. A material that is suspected of containing or presumed to contain asbestos but which has not been analyzed to confirm the presence or absence of asbestos.
PCB	Polychlorinated Biphenyl. A halogenated organic compound commonly in the form of a viscous liquid or resin, a flowing yellow oil, or a waxy solid. This compound was historically used as dielectric fluid in electrical equipment (such as electrical transformers and capacitors, electrical ballasts, hydraulic and heat transfer fluids), and for numerous heat and fire sensitive applications. PCB was preferred due to its durability, stability (even at high temperatures), good chemical resistance, low volatility, flammability, and conductivity. PCBs, however, do not break down in the environment and are classified by the EPA as a suspected carcinogen. 1978 regulations, under the Toxic Substances Control Act, prohibit manufacturing of PCB-containing equipment; however, some of this equipment may still be in use today.
pCi/L	picoCuries per Liter of Air. Unit of measurement for Radon and similar radioactive materials.
PLM	Polarized Light Microscopy (see ACM section of the report, if included in the scope of services)
PST	Petroleum Storage Tank. An AST or UST that contains a petroleum product.
Radon	A radioactive gas resulting from radioactive decay of naturally-occurring radioactive materials in rocks and soils containing uranium, granite, shale, phosphate, and pitchblende. Radon concentrations are measured in picoCuries per Liter of Air. Exposure to elevated levels of radon creates a risk of lung cancer; this risk generally increases as the level of radon and the duration of exposure increases. Outdoors, radon is diluted to such low concentrations that it usually does not present a health concern. However, radon can accumulate in building basements or similar enclosed spaces to levels that can pose a risk to human health. Indoor radon concentrations depend primarily upon the building's construction, design and the concentration of radon in the underlying soil and ground water. The EPA recommended annual average indoor "action level" concentration for residential structures is 4.0 pCi/l.
RCRA	Resource Conservation and Recovery Act. Federal act regulating solid and hazardous wastes from point of generation to time of disposal ("cradle to grave"). 42 U.S.C. 6901 et seq.
RCRA Generators	The RCRA Generators database, maintained by the EPA, lists facilities that generate hazardous waste as part of their normal business practices. Generators are listed as either large (LOG), small (SQG), or conditionally exempt (CESQG). LOG produce at least 1000 kg/month of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste. SQG produce 100-1000 kg/month of non-acutely hazardous waste. CESQG are those that generate less than 100 kg/month of non-acutely hazardous waste.

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Term/Acronym	Description
RCRA CORRACTS/ TSDs	The USEPA maintains a database of RCRA facilities associated with treatment, storage, and disposal (TSD) of hazardous materials which are undergoing “corrective action”. A “corrective action” order is issued when there is a release of hazardous waste or constituents into the environment from a RCRA facility.
RCRA Non-CORRACTS/ TSDs	The RCRA Non-CORRACTS/TSD Database is a compilation by the USEPA of facilities which report storage, transportation, treatment, or disposal of hazardous waste. Unlike the RCRA CORRACTS/TSD database, the RCRA Non-CORRACTS/TSD database does not include RCRA facilities where corrective action is required.
RCRA Violators List	RAATS. RCRA Administrative Actions Taken. RAATS information is now contained in the RCRIS database and includes records of administrative enforcement actions against facilities for noncompliance.
RCRIS	Resource Conservation and Recovery Information System, as defined in the Records Review section of this report.
REC	Recognized Environmental Conditions are defined by ASTM E1527-21 as 1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment. A de minimis condition is not a recognized environmental condition.
SCL	State “CERCLIS” List (see SPL /State Priority List, below).
SPCC	Spill Prevention, Control and Countermeasures. SPCC plans are required under federal law (Clean Water Act and Oil Pollution Act) for any facility storing petroleum in tanks and/or containers of 55-gallons or more that when taken in aggregate exceed 1,320 gallons. SPCC plans are also required for facilities with underground petroleum storage tanks with capacities of over 42,000 gallons. Many states have similar spill prevention programs, which may have additional requirements.
SPL	State Priority List. State list of confirmed sites having contamination in which the state is actively involved in clean up activities or is actively pursuing potentially responsible parties for clean up. Sometimes referred to as a State “CERCLIS” List.
SQG	Small Quantity Generator
SWF/LF	State and/or Tribal database of Solid Waste/Landfill facilities. The database information may include the facility name, class, operation type, area, estimated operational life, and owner.
TPH	Total Petroleum Hydrocarbons

Description of Selected General Terms and Acronyms

Term/Acronym	Description
TRI	Toxic Release Inventory. Routine EPA report on releases of toxic chemicals to the environment based upon information submitted by entities subject to reporting under the Emergency Planning and Community Right to Know Act.
TSCA	Toxic Substances Control Act. A federal law regulating manufacture, import, processing and distribution of chemical substances not specifically regulated by other federal laws (such as asbestos, PCBs, lead-based paint and radon). 15 U.S.C 2601 et seq.
USACE	United States Army Corps of Engineers
USC	United States Code
USGS	United States Geological Survey
USNRCS	United States Department of Agriculture-Natural Resource Conservation Service
UST	Underground Storage Tank. Most federal and state regulations, as well as ASTM E1527-21, define this as any tank, incl., underground piping connected to the tank, that is or has been used to contain hazardous substances or petroleum products and the volume of which is 10% or more beneath the surface of the ground (i.e., buried).
VCP	State and/or Tribal facilities included as Voluntary Cleanup Program sites.
VOC	Volatile Organic Compound

Description of Selected General Terms and Acronyms

Term/Acronym	Description
Wetlands	<p>Areas that are typically saturated with surface or ground water that creates an environment supportive of wetland vegetation (i.e., swamps, marshes, bogs). The <u>Corps of Engineers Wetlands Delineation Manual</u> (Technical Report Y-87-1) defines wetlands as areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. For an area to be considered a jurisdictional wetland, it must meet the following criteria: more than 50 percent of the dominant plant species must be categorized as Obligate, Facultative Wetland, or Facultative on lists of plant species that occur in wetlands; the soil must be hydric; and, wetland hydrology must be present.</p> <p>The federal Clean Water Act which regulates “waters of the US,” also regulates wetlands, a program jointly administered by the USACE and the EPA. Waters of the U.S. are defined as: (1) waters used in interstate or foreign commerce, including all waters subject to the ebb and flow of tides; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, etc., which the use, degradation, or destruction could affect interstate/ foreign commerce; (4) all impoundments of waters otherwise defined as waters of the U. S., (5) tributaries of waters identified in 1 through 4 above; (6) the territorial seas; and (7) wetlands adjacent to waters identified in 1 through 6 above. Only the USACE has the authority to make a final wetlands jurisdictional determination.</p>

ASBESTOS & LEAD-BASED PAINT INSPECTION REPORT

Fire Station #1

207 SE Douglas Street

Lee's Summit, Missouri 64063

February 26, 2024

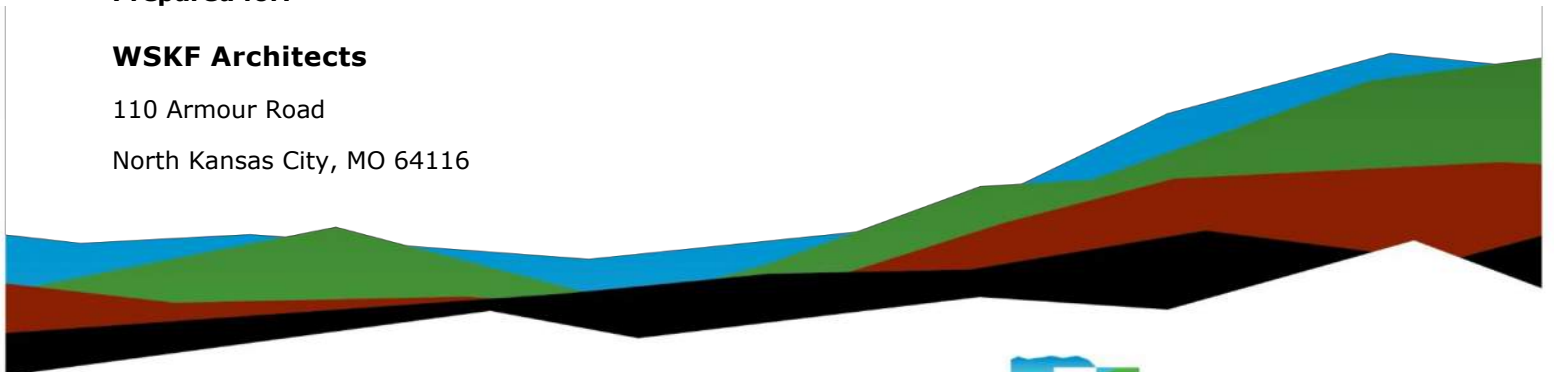


Prepared for:

WSKF Architects

110 Armour Road

North Kansas City, MO 64116



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February 26, 2024

WSKF Architects
 110 Armour Road
 North Kansas City, Missouri 64116

Attn: Dylan Novak
 P: (816) 300-4101
 E: DNovak@wskfarch.com

Re: Asbestos Containing Material (ACM) and Lead-Based Paint (LBP) Inspection
 Fire Station #1
 207 SE Douglas Street
 Lee’s Summit, Missouri 64063
 Terracon Project No. 02237353

Dear Ms. Novak:

Terracon Consultants, Inc. (Terracon) is pleased to submit the attached report for the above referenced site to WSKF Architects. The purpose of this report is to present the results of an asbestos and lead paint inspection conducted on February 7, 2024. This inspection was conducted in general accordance with our Proposal No. P02237353, dated November 7, 2023.

Asbestos was identified at a concentration greater than 1% in samples collected from the following materials:

Material Description	Material Location	NESHAP Category	Estimated Quantity*
White Sealant on Fiberglass Pipe Insulation	Basement Mechanical Room	Category II Nonfriable	10 units of pipe end sealant
Black Mastic Beneath 12" x 12" Gray Floor Tile	Basement Stair Landing, 1st floor Stair Landings	Category I Nonfriable	160 square feet
Black Mastic Beneath 12" x 12" Brown Floor Tile	Apparatus Bay North Center Beneath Cabinet	Category I Nonfriable	6 square feet
Cement Panels	Apparatus Bay NE above Cabinets	Category II Nonfriable	200 square feet

***Estimated quantities** – quantities based on a cursory field evaluation, and actual quantities may vary significantly, especially if asbestos-containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey.

Asbestos was detected at a concentration of 1% or less in samples collected from the following materials:

Material Description	Material Location	Estimated Quantity
Gypsum Wallboard with Joint Compound	Interior Walls Throughout	17,850 square feet

Please refer to Section 3.1 of the attached report for a detailed description of the asbestos survey and sampling activities. Please refer to Section 4.1 for asbestos survey findings.

Lead based paint (LBP) as defined by the United States Environmental Protection Agency (USEPA) and the State of Missouri was **not** identified in the areas inspected.

Lead containing paint (LCP) as defined by the United States Occupational Safety and Health Administration (USOSHA) was identified in the areas inspected. Based on results of the lead paint testing, **LCP was identified** on the following surfaces tested:

- 1st floor EMS storage room wood door – brown paint
- 1st floor restrooms wood doors – blue paint
- 2nd floor SW Training room and exercise room wood door – gray paint
- Interior metal door jambs – brown, gray, blue, black paint
- Interior metal window frames – brown, gray paint
- Interior metal stair risers, stair stringers and handrails – gray paint

Please refer to Section 3.2 of the attached report for a detailed description of the LBP survey and XRF testing. Section 4.2 for LBP survey findings.

Terracon appreciates the opportunity to provide this service to WSKF Architects. If you have any questions regarding this report, please contact the office at 913-492-7777.

Sincerely,

Terracon

Timothy Easley
Environmental Technician

Clark Grisell
Environmental Department Manager

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APPENDICES

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APPENDIX A-2 IDENTIFIED MATERIALS CONTAINING 1% OR LESS ASBESTOS BY HA

APPENDIX B ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

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APPENDIX D LEAD SURVEY SAMPLE RESULTS

APPENDIX E LICENSES AND CERTIFICATIONS

1.0 INTRODUCTION

Terracon Consultants Inc. (Terracon) conducted an asbestos and lead paint inspection of the Fire Station #1 Building located at 207 SE Douglas Street in Lee's Summit, Missouri. The inspection was conducted by a state of Missouri accredited asbestos inspector and State of Missouri certified Lead Inspector in general accordance with our Proposal No. P02237353, dated November 7, 2023. Building areas were visually assessed for suspect asbestos-containing materials (ACM) and lead-based paint (LBP). Reasonable effort was made to inspection accessible areas. Additional suspect materials could present in walls, in voids or in other concealed areas.

1.1 Reliance

This report is for the exclusive use of WSKF Architects and the City of Lee's Summit, Missouri for the project being discussed. Reliance by any other party on this report is prohibited without written authorization of Terracon and WSKF Architects. Reliance on this report by WSKF Architects and all authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report, and our Agreement for Services. The limitations of liability defined in our Agreement for Services is the aggregate limit of Terracon's liability to WSKF Architects.

2.0 SITE DESCRIPTION

This is an approximately 14,275 square foot, three-story fire station building. The building was constructed during the 1970's. Interior floors are concrete covered with carpet, floor tile or ceramic tile in most areas. Interior walls gypsum wallboard, concrete, or concrete block. Interior ceilings are drop ceiling tiles in most areas with concrete ceiling decks above. Exterior walls are brick.

3.0 FIELD ACTIVITIES

3.1 Asbestos Survey

The inspection was conducted by Timothy Easley, a state of Missouri accredited asbestos inspector. The asbestos inspectors' certification is attached in Appendix E. The inspection was conducted in general accordance with the sample collection protocols established in U.S. Environmental Protection Agency (EPA) 40 CFR Part 763 Subpart E 763.86, known as the AHERA. A summary of inspection activities is provided below.

3.1.1 Visual Assessment

Inspection activities were initiated with visual observation of the building to identify homogeneous areas of suspect ACM. A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application. The interior and exterior assessment was conducted in visually accessible areas of the building.

3.1.2 Physical Assessment

A physical assessment of each homogeneous area (HA) of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the USEPA as a material which can be crumbled, pulverized, or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

3.1.3 Sample Collection

Based on results of the visual observation, bulk samples of suspect ACM were collected in general accordance with USEPA AHERA sampling protocols. Samples of suspect materials were collected from randomly selected locations in each homogeneous area. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

The selection of sample locations and frequency of sampling were based on Terracon's observations and the assumption that like materials in the same area are homogeneous in content.

Fiberglass, foam glass, rubber, wood products, plastic products, glass, and steel are not considered suspect ACM and were, therefore, not sampled.

The survey was performed, and suspect ACM samples were collected, in general accordance with the protocols outlined in United States Environmental Protection Agency (USEPA) 40 Code of Federal Regulations (CFR) Part 763 Subpart E 763, known as the Asbestos Hazard Emergency Response Act (AHERA). Samples were delivered to an accredited laboratory for analysis by Polarized Light Microscopy (PLM).

3.1.4 Sample Analysis

Bulk samples were submitted under chain of custody to International Asbestos Testing Laboratories (IATL) of Mount Laurel, New Jersey for analysis by Polarized Light Microscopy (PLM) with dispersion staining techniques per USEPA methodology 600/R-93/116. The percentage of asbestos, where applicable, was determined by microscopic visual estimation. When applicable, the additional point count (PC) method (400 points) was utilized for samples identified by PLM to have low asbestos-content (typically less 10%). IATL is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), accreditation number 101165-0. Appendix C includes the asbestos analytical report.

3.1.5 Regulatory Overview

The asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. The asbestos NESHAP regulation also requires the identification and classification of existing ACM according to friability prior to demolition or renovation activity. Friable ACM is a material containing more than 1% asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. All friable ACM is considered regulated asbestos containing material (RACM).

The asbestos NESHAP regulation classifies ACM as either RACM, Category I non-friable ACM or Category II non-friable ACM. RACM includes all friable ACM, along with Category I and Category II non-friable

ACM that has become friable, will be or has been subjected to sanding, grinding, cutting or abrading, or ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder in the course of renovation or demolition activity. Category I non-friable ACM are exclusively asbestos-containing packings, gaskets, resilient floor coverings, resilient floor covering mastics and asphalt roofing products that contain more than 1% asbestos. Category II non-friable ACM are all other non-friable materials other than Category I non-friable ACM that contain more than 1% asbestos. Category II non-friable ACM generally includes but is not limited to cementitious material such as: cement pipes, cement siding, cement panels, glazing, mortar, and grouts.

The Missouri Department of Natural Resources, (MDNR) Air Pollution Control Program, enforces the Asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP) as adopted by reference at 10 CSR 10-6.080. The owner or operator must provide MDNR with written notification at least 10 working days prior to the commencement of asbestos abatement activities that will disturb Regulated Asbestos Containing Materials (RACM) in amounts greater than or equal to 160 square feet, 260 linear feet or 35 cubic feet.

The United States Occupational Safety and Health Administration (USOSHA) asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The USOSHA standard requires that employee exposure to airborne asbestos fibers be maintained at or below 0.1 fibers per cubic centimeter of air (0.1 f/cc) as an eight-hour time weighted average (TWA) and not exceed 1.0 fibers per cubic centimeter of air (1.0 f/cc) over a 30-minute period known as an excursion limit (EL). The TWA and EL are known as OSHA's permissible exposure limits (PELs). The OSHA standard classifies construction and maintenance activities which could disturb ACM and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

3.2 Lead-Based Paint Survey

Timothy Easley, a State of Missouri certified Lead Inspector, conducted lead-based paint (LBP) testing using a SciAps X550Pb, X-Ray Fluorescence instrument to determine if surface coatings contain lead.

Lead based paint (LBP) is defined by the USEPA and the State of Missouri as any paint or surface coating that contains 1.0 mg/cm² or greater of lead or 0.5% lead by weight by laboratory analysis, in "child occupied" and "targeted housing" and the USOSHA has indicated that owners or employers conducting renovation or demolition activities which may disturb building materials containing lead (in any concentration) are required to protect their employees from airborne lead exposures exceeding the USOSHA PEL.

3.2.1 Visual Assessment

The lead-based paint inspection began by a visual survey of accessible building components such as walls, ceilings, floors, doors, windows, stairs, and handrails. Various colors of paint were found on interior and exterior surfaces. These components have the potential to be disturbed during renovation activities.

3.2.2 Sample Collection and Analysis

A total of 223 XRF measurements were taken from testing combinations associated with the various components listed in Appendix D. Lead concentrations by XRF are measured in milligrams per square centimeter (mg/cm²).

A SciAps X550Pb, serial no. 01340, X-Ray Fluorescence Instrument was used to analyze surface coatings for lead content. The instrument was used in accordance with guidelines detailed in the manufacturer’s Standard Operating Procedures. Calibration checks were performed prior to and after sampling, using protocols provided by the instrument manufacturer.

3.2.3 Regulatory Overview

Lead based paint is defined by the USEPA and the State of Missouri as any paint or surface coating that contains 1.0 mg/cm² or greater of lead as measured by an XRF instrument.

The USOSHA uses the term lead containing paint (paint containing any detectable amount of lead). The USOSHA 29 CFR 1926.62 has established permissible limits for airborne lead concentrations in the workplace. Owners or employers conducting renovation or demolition activities which may disturb building materials containing lead (in any concentration) are required to protect their employees from airborne lead exposures exceeding the USOSHA permissible exposure limit (PEL).

USOSHA has established an “Action Level” for lead concentrations “in air” of 30 micrograms per cubic meter of air (µg/m³) and a “Permissible Exposure Limit” for lead concentrations “in air” of 50 µg/m³. Currently USOSHA has no established limits for lead content in bulk paint (non-airborne). Their interpretation on this issue is that any amount of lead may cause airborne concentrations above the established limits.

Missouri Department of Natural Resources lead occupation regulations governing proper training and work practices also apply.

4.0 FINDINGS

4.1 Asbestos Survey Findings

Asbestos was identified at a concentration greater than 1% in samples collected from the following materials.

Material Description	Material Location	NESHAP Category	Estimated Quantity*
White Sealant on Fiberglass Pipe Insulation	Basement Mechanical Room	Category II Nonfriable	10 units of pipe end sealant
Black Mastic Beneath 12" x 12" Gray Floor Tile	Basement Stair Landing, 1st floor Stair Landings	Category I Nonfriable	160 square feet

Material Description	Material Location	NESHAP Category	Estimated Quantity*
Black Mastic Beneath 12" x 12" Brown Floor Tile	Apparatus Bay North Center Beneath Cabinet	Category I Nonfriable	6 square feet
Cement Panels	Apparatus Bay NE above Cabinets	Category II Nonfriable	200 square feet

***Estimated quantities** – quantities based on a cursory field evaluation, and actual quantities may vary significantly, especially if asbestos-containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey.

The above listed Category I non-friable ACM that is damaged or could be damaged to the extent that it could be crumbled, pulverized or reduced to powder when dry, making it friable, must be removed prior to any activities (renovation and/or demolition) that may disturb this material in accordance with applicable federal, state and local regulations.

The above listed Category II non-friable ACM that has a high probability of becoming crumbled, pulverized, or reduced to powder when dry, making it friable, must be properly removed prior to any activities (renovation and/or demolition) that may disturb this material in accordance with applicable federal, state and local regulations. USEPA believes that most demolition activities will subject Category II non-friable ACM to the asbestos NESHAP regulation.

Asbestos was detected at a concentration of 1% or less in samples collected from the following materials:

Material Description	Material Location	Estimated Quantity
Gypsum Wallboard with Joint Compound	Interior Walls Throughout	17,850 square feet

When joint compound is applied to wallboard it becomes an integral part of the wallboard and in effect becomes one material forming a wall system. The EPA NESHAP allows for composite sampling of the wall system.

Materials containing 1% or less asbestos are not regulated by NESHAP or AHERA; however, the OSHA personal exposure limits (0.1 f/cc of air as an eight-hour time weighted average or 1.0 f/cc of air over 30 minutes) for asbestos apply when materials containing 1% asbestos or less are disturbed during renovation or demolition. A listing of materials that contain 1% asbestos or less are provided above to enable the renovation/demolition contractor to make appropriate decisions concerning compliance issues with applicable OSHA regulations. Due to the asbestos content of the gypsum wallboard (<1%), OSHA classifies removal of this material as Class II work.

4.2 LBP Survey Findings

Lead based paint (LBP) is defined by the USEPA and the State of Missouri as any paint or surface coating that contains 1.0 mg/cm² or greater of lead by XRF testing.

Lead based paint (LBP) as defined by the United States Environmental Protection Agency (USEPA) and the State of Missouri was **not** identified in the areas inspected.

Lead containing paint (LCP) as defined by the United States Occupational Safety and Health Administration (USOSHA) was identified in the areas inspected. Based on results of the lead paint testing, **LCP was identified** on the following surfaces tested:

- 1st floor EMS storage room wood door – brown paint
- 1st floor restrooms wood doors – blue paint
- 2nd floor SW Training room and exercise room wood door – gray paint
- Interior metal door jambs – brown, gray, blue, black paint
- Interior metal window frames – brown, gray paint
- Interior metal stair risers, stair stringers and handrails – gray paint

While the painted surfaces containing lead in concentrations between 0.0 and 1.0 mg/cm² do not meet the definition of lead-based paint under Housing and Urban Development (HUD), USEPA or the State of Missouri, the paint does contain lead and is subject to regulation under USOSHA. Therefore, it is the contractor's responsibility to make appropriate decisions concerning compliance with applicable USOSHA regulations.

The USOSHA hazard communication requirement states that when hazardous materials (lead, asbestos, etc.) are present, employers who have employees that may disturb the hazardous materials, employers must inform their employees of the presence of such materials.

Refer to Lead Paint XRF Data in Appendix D, for a complete list of surfaces tested and for the Lead Laboratory Analytical Data.

5.0 GENERAL COMMENTS

Terracon did not perform sampling that required demolition or destructive activities such as knocking holes in walls, dismantling of equipment or removal of protective coverings. Reasonable efforts to access suspect materials within known areas of restricted access (e.g., crawl spaces) were made; however, confined spaces or areas which may pose a health or safety risk to Terracon personnel were not sampled. Sampling did not include suspect materials that could not be safely reached with available ladders/man-lifts. Terracon did not sample suspect materials that may be present in movable equipment such as freezers, kitchen equipment and hoods. Terracon typically investigated for flooring beneath carpeting by lifting small corner sections of carpet. If tiles were seen, they have been identified in the report. If tiles were not seen at corners under the carpet, it does not imply that there are no tiles beneath the carpeted floor. Terracon did not conduct destructive investigation of doors in the building to determine if the doors were insulated for fire-rating purposes.

This inspection was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions, and recommendations expressed in this report are based on conditions observed

ASBESTOS & LEAD-BASED PAINT SURVEY REPORT

Fire Station #1 | Lee's Summit, Missouri

February 26, 2024 | Terracon Project No. 02237353



during Terracon's inspection of the building. The information contained in this report is relevant to the date on which this inspection was performed and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by WSKF Architects and the City of Lee's Summit, Missouri. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information that may have been used in the preparation of this report. No warranty, express or implied is made.

APPENDIX A-1

Fire Station #1
207 SE Douglas Street
Lee's Summit, Missouri
Terracon Project No. 02237353

IDENTIFIED ASBESTOS CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

HA No.	Material Description	Material Location	% and Type Asbestos*	NESHAP Classification	Condition	Estimated Quantity**
03	White Sealant on Fiberglass Pipe Insulation	Basement Mechanical Room	Fiberglass Pipe Insulation - None Detected White Sealant - PC 1.8% Chrysotile	Category II Nonfriable	Good	10 units of pipe end sealant
09	Black Mastic Beneath 12" x 12" Gray Floor Tile	Basement Stair Landing, 1st floor Stair Landings	Floor Tile - None Detected Black Mastic - PC 1.3% Chrysotile	Category I Nonfriable	Good	160 square feet
11	Black Mastic Beneath 12" x 12" Brown Floor Tile	Apparatus Bay North Center Beneath Cabinet	Floor Tile - None Detected Black Mastic - PC 4.9% Chrysotile	Category I Nonfriable	Good	6 square feet
16	Cement Panels	Apparatus Bay NE above Cabinets	20% Chrysotile	Category II Nonfriable	Good	200 square feet

***% & Type Asbestos** - this column contains both the analytical result of the sample with the highest concentration of asbestos detected in the samples that make up the HA and the types of asbestos identified.

****Estimated quantities** - quantities based on a cursory field evaluation, and actual quantities may vary significantly, especially if asbestos-containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey. This is not a bidding document; contractors are responsible for determining their own opinion of quantities.

PC - indicates that the additional stratified point count method (400 points) of analysis was performed after the initial PLM analysis.

APPENDIX A-2

Fire Station #1
207 SE Douglas Street
Lee's Summit, Missouri
Terracon Project No. 02237353

MATERIALS CONTAINING 1% OR LESS ASBESTOS BY HA

HA No.	Material Description	Material Location	% and Type Asbestos*	Condition	Estimated Quantity**
01	Gypsum Wallboard with Joint Compound	Interior Walls Throughout	Drywall – None Detected Joint Compound – PC 2.1% Chrysotile Composite – PC Trace Chrysotile	Good	17,850 square feet

***% & Type Asbestos** – this column contains both the analytical result of the sample with the highest concentration of asbestos detected in the samples that make up the HA and the types of asbestos identified.

****Estimated quantities** – quantities based on a cursory field evaluation, and actual quantities may vary significantly, especially if asbestos-containing materials are present in hidden and/or inaccessible areas not evaluated as part of this survey. This is not a bidding document; contractors are responsible for determining their own opinion of quantities.

PC – indicates that the additional stratified point count method (400 points) of analysis was performed after the initial PLM analysis

<1% - Materials containing less than 1% asbestos are not regulated by NESHAP or AHERA; however, the OSHA personal exposure limits (0.1 f/cc of air as an eight-hour time weighted average or 1.0 f/cc of air over 30 minutes) for asbestos apply when materials containing 1% asbestos or less are disturbed during renovations or demolitions. A listing of materials that contain 1% asbestos or less is provided above to enable the renovation/demolition contractor to make appropriate decisions concerning compliance issues with applicable OSHA regulations

APPENDIX B

Fire Station #1
207 SE Douglas Street
Lee's Summit, Missouri
Terracon Project No. 02237353

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

HA No.	Material Description	Sample Number	Sample Location	Sample Layer	Lab Results
01	Gypsum Wallboard with Joint Compound	01-WB1-01	Basement - Hall at Vending	White Drywall	None Detected
		01-WB1-01	Basement - Hall at Vending	White Joint Compound	PC 1.8% Chrysotile
		01-WB1-01	Basement - Hall at Vending	Composite	PC <1% Chrysotile
		01-WB1-02	1st FI Break Room - West Side	White Drywall	None Detected
		01-WB1-02	1st FI Break Room - West Side	White Joint Compound	PC 1.9% Chrysotile
		01-WB1-02	1st FI Break Room - West Side	Composite	PC <1% Chrysotile
		01-WB1-03	2nd FI Hall Near Day Room	White Drywall	None Detected
		01-WB1-03	2nd FI Hall Near Day Room	White Joint Compound	PC 2.1% Chrysotile
		01-WB1-03	2nd FI Hall Near Day Room	Composite	PC <1% Chrysotile
02		02-MI6-04	Basement - Mechanical Room	Grey Insulation	None Detected

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

HA No.	Material Description	Sample Number	Sample Location	Sample Layer	Lab Results
	Preformed White Block Exhaust Insulation	02-MI6-04	Basement - Mechanical Room	White Insulation	None Detected
		02-MI6-05	Basement - Mechanical Room	Grey Insulation	None Detected
		02-MI6-05	Basement - Mechanical Room	White Insulation	None Detected
		02-MI6-06	1st Floor - Apparatus Bay NE Corner	White Insulation	None Detected
03	White Sealant on Fiberglass Pipe Insulation	03-SC5-07	Basement Mechanical Room - North Side	White Sealant	PC 1.5% Chrysotile
		03-SC5-07	Basement Mechanical Room - North Side	Yellow Insulation	None Detected
		03-SC5-07	Basement Mechanical Room - North Side	White Woven Material	None Detected
		03-SC5-08	Basement Mechanical Room - South Side	White Sealant	PC 1.7% Chrysotile
		03-SC5-08	Basement Mechanical Room - South Side	Yellow Insulation	None Detected
		03-SC5-09	Basement Mechanical Room - South Side	White Sealant	PC 1.8% Chrysotile
		03-SC5-09	Basement Mechanical Room - South Side	Yellow Insulation	None Detected
04	2' x 4' Dot Pattern Ceiling Tile	04-CT4-10	Basement - Auditorium East Side	White Ceiling Tile	None Detected
		04-CT4-11	Basement - Center Hall	White Ceiling Tile	None Detected
		04-CT4-12	Basement - Video Tech Room	White Ceiling Tile	None Detected
05		05-CT4-13	1st Fl - Reception Area	White Ceiling Tile	None Detected

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

HA No.	Material Description	Sample Number	Sample Location	Sample Layer	Lab Results
	2' x 4' Pinhole Pattern Ceiling Tile	05-CT4-14	1st Fl - Hall East End	White Ceiling Tile	None Detected
		05-CT4-15	2nd Fl - Day Room East Side	White Ceiling Tile	None Detected
06	2' x 4' Smooth Ceiling Tile	06-CT4-16	Basement Dispatch - SE	White Ceiling Tile	None Detected
		06-CT4-17	Basement Dispatch - SW	White Ceiling Tile	None Detected
		06-CT4-18	Basement Dispatch - NW	White Ceiling Tile	None Detected
07	2' x 4' Fissure Pattern Ceiling Tile	07-CT4-19	Basement IT Room - East Side	White Ceiling Tile	None Detected
		07-CT4-20	Basement IT Room - SW	White Ceiling Tile	None Detected
		07-CT4-21	Basement IT Room - NW	White Ceiling Tile	None Detected
08	12" x 12" White with Gray Floor Tile and Mastic	08-FT2-22	Basement Dispatch Kitchen	White Floor Tile	None Detected
		08-FT2-22	Basement Dispatch Kitchen	Yellow Mastic	None Detected
		08-FT2-23	Basement Dispatch Kitchen	White Floor Tile	None Detected
		08-FT2-23	Basement Dispatch Kitchen	Yellow Mastic	None Detected
		08-FT2-24	Basement Dispatch Kitchen	White Floor Tile	None Detected
		08-FT2-24	Basement Dispatch Kitchen	Yellow Mastic	None Detected
09		09-FT2-25	Basement Stair Landing	Grey Floor Tile	None Detected

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

HA No.	Material Description	Sample Number	Sample Location	Sample Layer	Lab Results
	12" x 12" Gray Floor Tile and Mastic	09-FT2-25	Basement Stair Landing	Yellow/Black Mastic	PC 1.3% Chrysotile
		09-FT2-26	1st Floor Stair Landing at Door to Apparatus Bay	Grey Floor Tile	None Detected
		09-FT2-26	1st Floor Stair Landing at Door to Apparatus Bay	Yellow/Black Mastic	PC 1.2% Chrysotile
		09-FT2-27	1st Floor Stair Landing at Door to Apparatus Bay	Grey Floor Tile	None Detected
		09-FT2-27	1st Floor Stair Landing at Door to Apparatus Bay	Yellow Mastic	None Detected
10	12" x 12" Tan Floor Tile and Mastic	10-FT2-28	2nd Floor Laundry Room	Tan Floor Tile	None Detected
		10-FT2-28	2nd Floor Laundry Room	Yellow Mastic	None Detected
		10-FT2-29	2nd Floor Laundry Room	Tan Floor Tile	None Detected
		10-FT2-29	2nd Floor Laundry Room	Yellow Mastic	None Detected
		10-FT2-30	2nd Floor Laundry Room	Tan Floor Tile	None Detected
		10-FT2-30	2nd Floor Laundry Room	Yellow Mastic	None Detected
11	12" x 12" Brown Floor Tile and Mastic	11-FT2-31	1st Floor Apparatus Bay North Center Under Cabinet	Tan/Off-White Floor Tile	None Detected
		11-FT2-31	1st Floor Apparatus Bay North Center Under Cabinet	Black Mastic	PC 4.9% Chrysotile
		11-FT2-32	1st Floor Apparatus Bay North Center Under Cabinet	Tan/Off-White Floor Tile	None Detected
		11-FT2-32	1st Floor Apparatus Bay North Center Under Cabinet	Black Mastic	PC 4.1% Chrysotile

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

HA No.	Material Description	Sample Number	Sample Location	Sample Layer	Lab Results
		11-FT2-33	1st Floor Apparatus Bay North Center Under Cabinet	Tan/Off-White Floor Tile	None Detected
		11-FT2-33	1st Floor Apparatus Bay North Center Under Cabinet	Black Mastic	PC 4.4% Chrysotile
12	Brown Epoxy Flooring	12-FC5-34	Basement Hall by Dispatch	Brown Flooring	None Detected
		12-FC5-35	1st Floor Hall East End	Brown Flooring	None Detected
		12-FC5-35	1st Floor Hall East End	Lt Grey/Off-White Concrete	None Detected
		12-FC5-36	1st Floor - North Center Hall	Brown Flooring	None Detected
13	Tan Ceramic Tile Grout	13-MA4-37	1st FI Hall at Entry	Grey Grout	None Detected
		13-MA4-38	1st FI Lobby at South Office	Grey Grout	None Detected
		13-MA4-39	1st FI Center Hall at Restrooms	Grey Grout	None Detected
14	Carpet Glue	14-MG7-40	1st FI Reception Area - NE	Clear/Yellow Mastic	None Detected
		14-MG7-41	1st FI NW Asst Chief Office	Clear/Yellow Mastic	None Detected
		14-MG7-42	2nd Floor - Day Room - SE	Yellow/Off-White Mastic	None Detected
15	Cove Base and Mastic	15-FC3-43	Basement Auditorium SE Closet	Grey Cove Base	None Detected
		15-FC3-43	Basement Auditorium SE Closet	Cream Mastic	None Detected
		15-FC3-44	1st Floor Break Room by Sink	Grey/Tan Cove Base	None Detected

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

HA No.	Material Description	Sample Number	Sample Location	Sample Layer	Lab Results
		15-FC3-44	1st Floor Break Room by Sink	Yellow Mastic	None Detected
		15-FC3-45	1st Floor EMS Storage SE	Brown Cove Base	None Detected
		15-FC3-45	1st Floor EMS Storage SE	Yellow Mastic	None Detected
16	Cement Panels	16-CP1-46	1st FI Apparatus Bay North Side Above Cabinets	Grey Cement Product	20% Chrysotile
		16-CP1-47	1st FI Apparatus Bay North Side Above Cabinets	Grey Cement Product	20% Chrysotile
		16-CP1-48	1st FI Apparatus Bay North Side Above Cabinets	Grey Cement Product	20% Chrysotile
17	Window Caulk	17-CA1-49	Exterior - North Side - West	Dk Brown Caulk	None Detected
		17-CA1-50	Exterior - East Side Center	Dk Brown/Black Caulk	None Detected
		17-CA1-50	Exterior - East Side Center	Grey Caulk	None Detected
		17-CA1-51	Exterior - West Side by Garage	White Caulk	None Detected
		17-CA1-51	Exterior - West Side by Garage	Dk Grey/Brown Caulk	None Detected
18	Membrane Roofing with Foam Insulation	18-RF5-52	Roof - NE Corner - Top Layer	White Non-Fibrous	None Detected
		18-RF5-52	Roof - NE Corner - Top Layer	Black Rubber	None Detected
		18-RF5-52	Roof - NE Corner - Top Layer	Dk Grey/Tan Felt	None Detected
		18-RF5-52	Roof - NE Corner - Top Layer	Lt Yellow Foam	None Detected

ASBESTOS SURVEY SAMPLE LOCATION SUMMARY

HA No.	Material Description	Sample Number	Sample Location	Sample Layer	Lab Results
		18-RF5-53	Roof - SE Corner - Top Layer	White Non-Fibrous	None Detected
		18-RF5-53	Roof - SE Corner - Top Layer	Black Rubber	None Detected
		18-RF5-53	Roof - SE Corner - Top Layer	Dk Grey/Tan Felt	None Detected
		18-RF5-53	Roof - SE Corner - Top Layer	Lt Yellow Foam	None Detected
		18-RF5-54	Roof - SW Corner - Top Layer	White Non-Fibrous	None Detected
		18-RF5-54	Roof - SW Corner - Top Layer	Black Rubber	None Detected
		18-RF5-54	Roof - SW Corner - Top Layer	Dk Grey/Tan Felt	None Detected
		18-RF5-54	Roof - SW Corner - Top Layer	Lt Yellow Foam	None Detected
19	Tar Felt Roofing with Gypsum Insulation	19-RF5-55	Roof - NE Corner - Bottom Layer	Black Felt	None Detected
		19-RF5-55	Roof - NE Corner - Bottom Layer	Off-White Insulation	None Detected
		19-RF5-56	Roof - SE Corner - Bottom Layer	Black Felt	None Detected
		19-RF5-56	Roof - SE Corner - Bottom Layer	Off-White Insulation	None Detected
		19-RF5-57	Roof - SW Corner - Bottom Layer	Black Felt	None Detected
		19-RF5-57	Roof - SW Corner - Bottom Layer	Off-White Insulation	None Detected

Asbestos-containing materials in **BOLD**.

Materials containing less than 1% asbestos in *Italic*.

PC – indicates that the additional stratified point count method (400 points) of analysis was performed after the initial PLM analysis.

APPENDIX C

ASBESTOS ANALYTICAL LABORATORY DATA

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219


Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

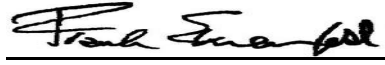
Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725949 Client No.: 01-WB1-01	Analyst Observation: White Drywall Client Description: Gypsum Wallboard W/ Joint Compound	Location: Basement - Hall At Vending Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 5 Cellulose	<u>Percent Non-Fibrous Material:</u> 95
Lab No.: 7725949(L2) Client No.: 01-WB1-01	Analyst Observation: White Joint Compound Client Description: Gypsum Wallboard W/ Joint Compound	Location: Basement - Hall At Vending Facility:
<u>Percent Asbestos:</u> PC 1.8 Chrysotile	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 98.2
Lab No.: 7725949(L3) Client No.: 01-WB1-01	Analyst Observation: Composite Client Description: Gypsum Wallboard W/ Joint Compound	Location: Basement - Hall At Vending Facility:
<u>Percent Asbestos:</u> PC Trace Chrysotile	<u>Percent Non-Asbestos Fibrous Material:</u> 2 Cellulose	<u>Percent Non-Fibrous Material:</u> 98
Lab No.: 7725950 Client No.: 01-WB1-02	Analyst Observation: White Drywall Client Description: Gypsum Wallboard W/ Joint Compound	Location: 1st Fl Break Room - West Side Facility:
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 5 Cellulose	<u>Percent Non-Fibrous Material:</u> 95
Lab No.: 7725950(L2) Client No.: 01-WB1-02	Analyst Observation: White Joint Compound Client Description: Gypsum Wallboard W/ Joint Compound	Location: 1st Fl Break Room - West Side Facility:
<u>Percent Asbestos:</u> PC 1.9 Chrysotile	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 98.1
Lab No.: 7725950(L3) Client No.: 01-WB1-02	Analyst Observation: Composite Client Description: Gypsum Wallboard W/ Joint Compound	Location: 1st Fl Break Room - West Side Facility:
<u>Percent Asbestos:</u> PC Trace Chrysotile	<u>Percent Non-Asbestos Fibrous Material:</u> 2 Cellulose	<u>Percent Non-Fibrous Material:</u> 98

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 2/9/2024
Date Analyzed: 02/19/2024
Signature: 
Analyst: Aidan Becker

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725951 **Analyst Observation:** White Drywall **Location:** 2nd Fl Hall Near Day Room
Client No.: 01-WB1-03 **Client Description:** Gypsum Wallboard W/ Joint Compound **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 5 Cellulose 95

Lab No.: 7725951(L2) **Analyst Observation:** White Joint Compound **Location:** 2nd Fl Hall Near Day Room
Client No.: 01-WB1-03 **Client Description:** Gypsum Wallboard W/ Joint Compound **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
PC 2.1 Chrysotile None Detected 97.9


Lab No.: 7725951(L3) **Analyst Observation:** Composite **Location:** 2nd Fl Hall Near Day Room
Client No.: 01-WB1-03 **Client Description:** Gypsum Wallboard W/ Joint Compound **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
PC Trace Chrysotile 2 Cellulose 98

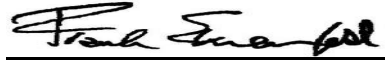
Lab No.: 7725952 **Analyst Observation:** Grey Insulation **Location:** Basement - Mechanical Room
Client No.: 02-MI6-04 **Client Description:** Exhaust Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 15 Fibrous Glass 85

Lab No.: 7725952(L2) **Analyst Observation:** White Insulation **Location:** Basement - Mechanical Room
Client No.: 02-MI6-04 **Client Description:** Exhaust Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 10 Synthetic 90

Lab No.: 7725953 **Analyst Observation:** Grey Insulation **Location:** Basement - Mechanical Room
Client No.: 02-MI6-05 **Client Description:** Exhaust Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 15 Fibrous Glass 85

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Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725953(L2)
Client No.: 02-MI6-05

Analyst Observation: White Insulation
Client Description: Exhaust Insulation

Location: Basement - Mechanical Room
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
10 Synthetic

Percent Non-Fibrous Material:
90

Lab No.: 7725954
Client No.: 02-MI6-06

Analyst Observation: White Insulation
Client Description: Exhaust Insulation

Location: 1st Floor - Apparatus Bay NE
Corner
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
15 Cellulose

Percent Non-Fibrous Material:
85

Lab No.: 7725955
Client No.: 03-SC5-07

Analyst Observation: White Sealant
Client Description: White Sealant On Fiberglass Pipe
Insulation

Location: Basement Mechanical Room -
North Side
Facility:

Percent Asbestos:
PC 1.5 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
98.5

Lab No.: 7725955(L2)
Client No.: 03-SC5-07

Analyst Observation: Yellow Insulation
Client Description: White Sealant On Fiberglass Pipe
Insulation

Location: Basement Mechanical Room -
North Side
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
90 Fibrous Glass

Percent Non-Fibrous Material:
10

Lab No.: 7725955(L3)
Client No.: 03-SC5-07

Analyst Observation: White Woven Material
Client Description: White Sealant On Fiberglass Pipe
Insulation

Location: Basement Mechanical Room -
North Side
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
90 Cellulose

Percent Non-Fibrous Material:
10

Lab No.: 7725956
Client No.: 03-SC5-08

Analyst Observation: White Sealant
Client Description: White Sealant On Fiberglass Pipe
Insulation


Location: Basement Mechanical Room -
South Side
Facility:

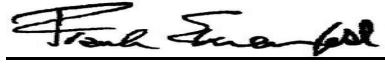
Percent Asbestos:
PC 1.7 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
98.3

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Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725956(L2)
Client No.: 03-SC5-08

Analyst Observation: Yellow Insulation
Client Description: White Sealant On Fiberglass Pipe Insulation
Percent Non-Asbestos Fibrous Material:
90 Fibrous Glass

Location: Basement Mechanical Room - South Side
Facility:
Percent Non-Fibrous Material:
10

Percent Asbestos:
None Detected

Lab No.: 7725957
Client No.: 03-SC5-09

Analyst Observation: White Sealant
Client Description: White Sealant On Fiberglass Pipe Insulation
Percent Non-Asbestos Fibrous Material:
None Detected

Location: Basement Mechanical Room - South Side
Facility:
Percent Non-Fibrous Material:
98.2

Percent Asbestos:
PC 1.8 Chrysotile

Lab No.: 7725957(L2)
Client No.: 03-SC5-09

Analyst Observation: Yellow Insulation
Client Description: White Sealant On Fiberglass Pipe Insulation
Percent Non-Asbestos Fibrous Material:
90 Fibrous Glass

Location: Basement Mechanical Room - South Side
Facility:
Percent Non-Fibrous Material:
10

Percent Asbestos:
None Detected

Lab No.: 7725958
Client No.: 04-CT4-10

Analyst Observation: White Ceiling Tile
Client Description: 2x4 Dot Pattern Ceiling Tile
Percent Non-Asbestos Fibrous Material:
60 Cellulose
20 Fibrous Glass

Location: Basement - Auditorium East Side
Facility:
Percent Non-Fibrous Material:
10

Percent Asbestos:
None Detected

Lab No.: 7725959
Client No.: 04-CT4-11

Analyst Observation: White Ceiling Tile
Client Description: 2x4 Dot Pattern Ceiling Tile
Percent Non-Asbestos Fibrous Material:
60 Cellulose
20 Fibrous Glass

Location: Basement - Center Hall
Facility:
Percent Non-Fibrous Material:
10

Percent Asbestos:
None Detected


Lab No.: 7725960
Client No.: 04-CT4-12

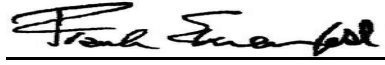
Analyst Observation: White Ceiling Tile
Client Description: 2x4 Dot Pattern Ceiling Tile
Percent Non-Asbestos Fibrous Material:
60 Cellulose
20 Fibrous Glass

Location: Basement - Video Tech Room
Facility:
Percent Non-Fibrous Material:
20

Percent Asbestos:
None Detected

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Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725961
Client No.: 05-CT4-13

Analyst Observation: White Ceiling Tile
Client Description: 2x4 Ceiling Tile Pinhole Pattern
Percent Non-Asbestos Fibrous Material:
60 Cellulose
20 Fibrous Glass

Location: 1st Fl - Reception Area
Facility:

Percent Asbestos:
None Detected

Percent Non-Fibrous Material:
20

Lab No.: 7725962
Client No.: 05-CT4-14

Analyst Observation: White Ceiling Tile
Client Description: 2x4 Ceiling Tile Pinhole Pattern
Percent Non-Asbestos Fibrous Material:
60 Cellulose
20 Fibrous Glass

Location: 1st Fl - Hall East End
Facility:

Percent Asbestos:
None Detected

Percent Non-Fibrous Material:
20

Lab No.: 7725963
Client No.: 05-CT4-15

Analyst Observation: White Ceiling Tile
Client Description: 2x4 Ceiling Tile Pinhole Pattern
Percent Non-Asbestos Fibrous Material:
60 Cellulose
20 Fibrous Glass

Location: 2nd Fl - Day Room East Side
Facility:

Percent Asbestos:
None Detected

Percent Non-Fibrous Material:
20

Lab No.: 7725964
Client No.: 06-CT4-16

Analyst Observation: White Ceiling Tile
Client Description: 2x4 Smooth Ceiling Tile
Percent Non-Asbestos Fibrous Material:
50 Cellulose
40 Fibrous Glass

Location: Basement Dispatch - SE
Facility:

Percent Asbestos:
None Detected

Percent Non-Fibrous Material:
10

Lab No.: 7725965
Client No.: 06-CT4-17

Analyst Observation: White Ceiling Tile
Client Description: 2x4 Smooth Ceiling Tile
Percent Non-Asbestos Fibrous Material:
50 Cellulose
40 Fibrous Glass

Location: Basement Dispatch - SW
Facility:

Percent Asbestos:
None Detected

Percent Non-Fibrous Material:
10

Lab No.: 7725966
Client No.: 06-CT4-18


Analyst Observation: White Ceiling Tile
Client Description: 2x4 Smooth Ceiling Tile
Percent Non-Asbestos Fibrous Material:
50 Cellulose
40 Fibrous Glass

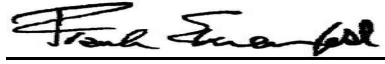
Location: Basement Dispatch - NW
Facility:

Percent Asbestos:
None Detected

Percent Non-Fibrous Material:
10

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Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725967 **Analyst Observation:** White Ceiling Tile **Location:** Basement IT Room - East Side
Client No.: 07-CT4-19 **Client Description:** 2x4 Fissure Pattern Ceiling Tile **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 60 Cellulose 20
20 Fibrous Glass

Lab No.: 7725968 **Analyst Observation:** White Ceiling Tile **Location:** Basement IT Room - SW
Client No.: 07-CT4-20 **Client Description:** 2x4 Fissure Pattern Ceiling Tile **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 60 Cellulose 20
20 Fibrous Glass


Lab No.: 7725969 **Analyst Observation:** White Ceiling Tile **Location:** Basement IT Room - NW
Client No.: 07-CT4-21 **Client Description:** 2x4 Fissure Pattern Ceiling Tile **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 60 Cellulose 20
20 Fibrous Glass

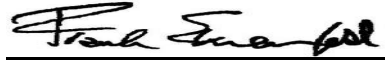
Lab No.: 7725970 **Analyst Observation:** White Floor Tile **Location:** Basement Dispatch Kitchen
Client No.: 08-FT2-22 **Client Description:** 12"x12" White W/ Gray Floor Tile And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725970(L2) **Analyst Observation:** Yellow Mastic **Location:** Basement Dispatch Kitchen
Client No.: 08-FT2-22 **Client Description:** 12"x12" White W/ Gray Floor Tile And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725971 **Analyst Observation:** White Floor Tile **Location:** Basement Dispatch Kitchen
Client No.: 08-FT2-23 **Client Description:** 12"x12" White W/ Gray Floor Tile And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 2/9/2024
Date Analyzed: 02/19/2024
Signature: 
Analyst: Aidan Becker

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725971(L2) **Analyst Observation:** Yellow Mastic **Location:** Basement Dispatch Kitchen
Client No.: 08-FT2-23 **Client Description:** 12"x12" White W/ Gray Floor Tile And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725972 **Analyst Observation:** White Floor Tile **Location:** Basement Dispatch Kitchen
Client No.: 08-FT2-24 **Client Description:** 12"x12" White W/ Gray Floor Tile And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725972(L2) **Analyst Observation:** Yellow Mastic **Location:** Basement Dispatch Kitchen
Client No.: 08-FT2-24 **Client Description:** 12"x12" White W/ Gray Floor Tile And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100


Lab No.: 7725973 **Analyst Observation:** Grey Floor Tile **Location:** Basement Stair Landing
Client No.: 09-FT2-25 **Client Description:** 12"x12" Gray Floor Tile And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

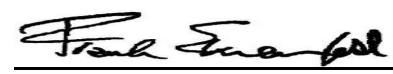
Lab No.: 7725973(L2) **Analyst Observation:** Yellow/Black Mastic **Location:** Basement Stair Landing
Client No.: 09-FT2-25 **Client Description:** 12"x12" Gray Floor Tile And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
PC 1.3 Chrysotile None Detected 98.7

Layers not separable.

Lab No.: 7725974 **Analyst Observation:** Grey Floor Tile **Location:** 1st Floor Stair Landing At Door
Client No.: 09-FT2-26 **Client Description:** 12"x12" Gray Floor Tile And Mastic To Apparatus Bay
Facility:
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

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Date Received: 2/9/2024
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Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725974(L2)
Client No.: 09-FT2-26

Analyst Observation: Yellow/Black Mastic
Client Description: 12"x12" Gray Floor Tile And Mastic

Location: 1st Floor Stair Landing At Door
To Apparatus Bay

Percent Asbestos:
PC 1.2 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
98.8

Layers not separable.

Lab No.: 7725975
Client No.: 09-FT2-27

Analyst Observation: Grey Floor Tile
Client Description: 12"x12" Gray Floor Tile And Mastic

Location: 1st Floor Stair Landing At Door
To Apparatus Bay

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Facility:
Percent Non-Fibrous Material:
100

Lab No.: 7725975(L2)
Client No.: 09-FT2-27

Analyst Observation: Yellow Mastic
Client Description: 12"x12" Gray Floor Tile And Mastic


Location: 1st Floor Stair Landing At Door
To Apparatus Bay

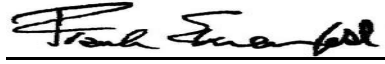
Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Facility:
Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

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Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725976
Client No.: 10-FT2-28

Analyst Observation: Tan Floor Tile
Client Description: 12"x12" Tan Floor Tile And Mastic

Location: 2nd Floor Laundry Room
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 7725976(L2)
Client No.: 10-FT2-28

Analyst Observation: Yellow Mastic
Client Description: 12"x12" Tan Floor Tile And Mastic

Location: 2nd Floor Laundry Room
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 7725977
Client No.: 10-FT2-29

Analyst Observation: Tan Floor Tile
Client Description: 12"x12" Tan Floor Tile And Mastic

Location: 2nd Floor Laundry Room
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 7725977(L2)
Client No.: 10-FT2-29

Analyst Observation: Yellow Mastic
Client Description: 12"x12" Tan Floor Tile And Mastic

Location: 2nd Floor Laundry Room
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 7725978
Client No.: 10-FT2-30

Analyst Observation: Tan Floor Tile
Client Description: 12"x12" Tan Floor Tile And Mastic

Location: 2nd Floor Laundry Room
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 7725978(L2)
Client No.: 10-FT2-30

Analyst Observation: Yellow Mastic
Client Description: 12"x12" Tan Floor Tile And Mastic


Location: 2nd Floor Laundry Room
Facility:


Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

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Date Received: 2/9/2024
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Signature: 
Analyst: Dean Andrews

Approved By: 
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Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725979
Client No.: 11-FT2-31

Analyst Observation: Tan/Off-White Floor Tile
Client Description: 12"x12" Brown Floor Tile And Mastic

Location: 1st Floor Apparatus Bay North
Center Under Cabinet
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 7725979(L2)
Client No.: 11-FT2-31

Analyst Observation: Black Mastic
Client Description: 12"x12" Brown Floor Tile And Mastic

Location: 1st Floor Apparatus Bay North
Center Under Cabinet
Facility:

Percent Asbestos:
PC 4.9 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
95.1

Lab No.: 7725980
Client No.: 11-FT2-32

Analyst Observation: Tan/Off-White Floor Tile
Client Description: 12"x12" Brown Floor Tile And Mastic

Location: 1st Floor Apparatus Bay North
Center Under Cabinet
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 7725980(L2)
Client No.: 11-FT2-32

Analyst Observation: Black Mastic
Client Description: 12"x12" Brown Floor Tile And Mastic

Location: 1st Floor Apparatus Bay North
Center Under Cabinet
Facility:

Percent Asbestos:
PC 4.1 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
95.9

Lab No.: 7725981
Client No.: 11-FT2-33

Analyst Observation: Tan/Off-White Floor Tile
Client Description: 12"x12" Brown Floor Tile And Mastic

Location: 1st Floor Apparatus Bay North
Center Under Cabinet
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 7725981(L2)
Client No.: 11-FT2-33

Analyst Observation: Black Mastic
Client Description: 12"x12" Brown Floor Tile And Mastic


Location: 1st Floor Apparatus Bay North
Center Under Cabinet
Facility:

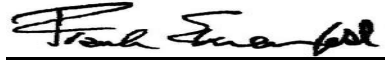
Percent Asbestos:
PC 4.4 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
95.6

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Date Received: 2/9/2024
Date Analyzed: 02/19/2024
Signature: 
Analyst: Dean Andrews

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725982 **Analyst Observation:** Brown Flooring **Location:** Basement Hall By Dispatch
Client No.: 12-FC5-34 **Client Description:** Brown Epoxy Flooring **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Note: No mastic present

Lab No.: 7725983 **Analyst Observation:** Brown Flooring **Location:** 1st Floor Hall East End
Client No.: 12-FC5-35 **Client Description:** Brown Epoxy Flooring **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100


Lab No.: 7725983(L2) **Analyst Observation:** Lt Grey/Off-White Concrete **Location:** 1st Floor Hall East End
Client No.: 12-FC5-35 **Client Description:** Brown Epoxy Flooring **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

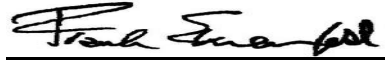
Lab No.: 7725984 **Analyst Observation:** Brown Flooring **Location:** 1st Floor - North Center Hall
Client No.: 12-FC5-36 **Client Description:** Brown Epoxy Flooring **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725985 **Analyst Observation:** Grey Grout **Location:** 1st Fl Hall At Entry
Client No.: 13-MA4-37 **Client Description:** Tan Ceramic Tile Grout **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725986 **Analyst Observation:** Grey Grout **Location:** 1st Fl Lobby At South Office
Client No.: 13-MA4-38 **Client Description:** Tan Ceramic Tile Grout **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 2/9/2024
Date Analyzed: 02/19/2024
Signature: 
Analyst: Dean Andrews

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725987 **Analyst Observation:** Grey Grout **Location:** 1st Fl Center Hall At Restrooms
Client No.: 13-MA4-39 **Client Description:** Tan Ceramic Tile Grout **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725988 **Analyst Observation:** Clear/Yellow Mastic **Location:** 1st Fl Reception Area - NE
Client No.: 14-MG7-40 **Client Description:** Carpet Glue **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725989 **Analyst Observation:** Clear/Yellow Mastic **Location:** 1st Fl NW Asst Chief Office
Client No.: 14-MG7-41 **Client Description:** Carpet Glue **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Layers not separable.


Lab No.: 7725990 **Analyst Observation:** Yellow/Off-White Mastic **Location:** 2nd Floor - Day Room - SE
Client No.: 14-MG7-42 **Client Description:** Carpet Glue **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

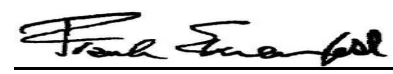
Layers not separable.

Lab No.: 7725991 **Analyst Observation:** Grey Cove Base **Location:** Basement Auditorium SE Closet
Client No.: 15-FC3-43 **Client Description:** Cove Base And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725991(L2) **Analyst Observation:** Cream Mastic **Location:** Basement Auditorium SE Closet
Client No.: 15-FC3-43 **Client Description:** Cove Base And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 2/9/2024
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Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

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Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725992 **Analyst Observation:** Grey/Tan Cove Base **Location:** 1st Floor Break Room By Sink
Client No.: 15-FC3-44 **Client Description:** Cove Base And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725992(L2) **Analyst Observation:** Yellow Mastic **Location:** 1st Floor Break Room By Sink
Client No.: 15-FC3-44 **Client Description:** Cove Base And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100


Lab No.: 7725993 **Analyst Observation:** Brown Cove Base **Location:** 1st Floor EMS Storage SE
Client No.: 15-FC3-45 **Client Description:** Cove Base And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

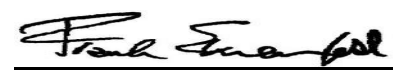
Lab No.: 7725993(L2) **Analyst Observation:** Yellow Mastic **Location:** 1st Floor EMS Storage SE
Client No.: 15-FC3-45 **Client Description:** Cove Base And Mastic **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7725994 **Analyst Observation:** Grey Cement Product **Location:** 1st Fl Apparatus Bay North Side
Client No.: 16-CP1-46 **Client Description:** Cement Panels **Facility:** Above Cabinets
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
20 Chrysotile None Detected 80

Lab No.: 7725995 **Analyst Observation:** Grey Cement Product **Location:** 1st Fl Apparatus Bay North Side
Client No.: 16-CP1-47 **Client Description:** Cement Panels **Facility:** Above Cabinets
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
20 Chrysotile None Detected 80

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 2/9/2024
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Signature: 
Analyst: Dean Andrews

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

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Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7725996 **Analyst Observation:** Grey Cement Product **Location:** 1st Fl Apparatus Bay North Side
Client No.: 16-CP1-48 **Client Description:** Cement Panels **Facility:** Above Cabinets
Percent Asbestos: **Percent Non-Asbestos Fibrous Material:** **Percent Non-Fibrous Material:**
20 Chrysotile None Detected 80

Lab No.: 7725997 **Analyst Observation:** Dk Brown Caulk **Location:** Exterior - North Side - West
Client No.: 17-CA1-49 **Client Description:** Window Caulk **Facility:**
Percent Asbestos: **Percent Non-Asbestos Fibrous Material:** **Percent Non-Fibrous Material:**
None Detected None Detected 100


Lab No.: 7725998 **Analyst Observation:** Dk Brown/Black Caulk **Location:** Exterior - East Side Center
Client No.: 17-CA1-50 **Client Description:** Window Caulk **Facility:**
Percent Asbestos: **Percent Non-Asbestos Fibrous Material:** **Percent Non-Fibrous Material:**
None Detected None Detected 100

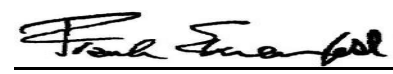
Lab No.: 7725998(L2) **Analyst Observation:** Grey Caulk **Location:** Exterior - East Side Center
Client No.: 17-CA1-50 **Client Description:** Window Caulk **Facility:**
Percent Asbestos: **Percent Non-Asbestos Fibrous Material:** **Percent Non-Fibrous Material:**
None Detected None Detected 100

Lab No.: 7725999 **Analyst Observation:** White Caulk **Location:** Exterior - West Side By Garage
Client No.: 17-CA1-51 **Client Description:** Window Caulk **Facility:**
Percent Asbestos: **Percent Non-Asbestos Fibrous Material:** **Percent Non-Fibrous Material:**
None Detected None Detected 100

Lab No.: 7725999(L2) **Analyst Observation:** Dk Grey/Brown Caulk **Location:** Exterior - West Side By Garage
Client No.: 17-CA1-51 **Client Description:** Window Caulk **Facility:**
Percent Asbestos: **Percent Non-Asbestos Fibrous Material:** **Percent Non-Fibrous Material:**
None Detected None Detected 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 2/9/2024
Date Analyzed: 02/19/2024
Signature: 
Analyst: Dean Andrews

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7726000 **Analyst Observation:** White Non-Fibrous **Location:** Roof - NE Corner - Top Layer
Client No.: 18-RF5-52 **Client Description:** Membrane Roofing W Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 30 Synthetic 70

Lab No.: 7726000(L2) **Analyst Observation:** Black Rubber **Location:** Roof - NE Corner - Top Layer
Client No.: 18-RF5-52 **Client Description:** Membrane Roofing W Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7726000(L3) **Analyst Observation:** Dk Grey/Tan Felt **Location:** Roof - NE Corner - Top Layer
Client No.: 18-RF5-52 **Client Description:** Membrane Roofing W Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 40 Cellulose 15
45 Fibrous Glass


Layers not separable.

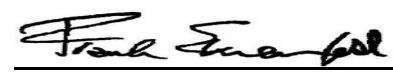
Lab No.: 7726000(L4) **Analyst Observation:** Lt Yellow Foam **Location:** Roof - NE Corner - Top Layer
Client No.: 18-RF5-52 **Client Description:** Membrane Roofing W Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Lab No.: 7726001 **Analyst Observation:** White Non-Fibrous **Location:** Roof - SE Corner - Top Layer
Client No.: 18-RF5-53 **Client Description:** Membrane Roofing W Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 35 Synthetic 65

Lab No.: 7726001(L2) **Analyst Observation:** Black Rubber **Location:** Roof - SE Corner - Top Layer
Client No.: 18-RF5-53 **Client Description:** Membrane Roofing W Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 2/9/2024
Date Analyzed: 02/19/2024
Signature: 
Analyst: Dean Andrews

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7726001(L3)
Client No.: 18-RF5-53

Analyst Observation: Dk Grey/Tan Felt
Client Description: Membrane Roofing W Insulation

Location: Roof - SE Corner - Top Layer
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
40 Cellulose
40 Fibrous Glass

Percent Non-Fibrous Material:
20

Layers not separable.

Lab No.: 7726001(L4)
Client No.: 18-RF5-53

Analyst Observation: Lt Yellow Foam
Client Description: Membrane Roofing W Insulation

Location: Roof - SE Corner - Top Layer
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 7726002
Client No.: 18-RF5-54

Analyst Observation: White Non-Fibrous
Client Description: Membrane Roofing W Insulation

Location: Roof - SW Corner - Top Layer
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
35 Synthetic
None Detected

Percent Non-Fibrous Material:
65

Lab No.: 7726002(L2)
Client No.: 18-RF5-54

Analyst Observation: Black Rubber
Client Description: Membrane Roofing W Insulation

Location: Roof - SW Corner - Top Layer
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 7726002(L3)
Client No.: 18-RF5-54

Analyst Observation: Dk Grey/Tan Felt
Client Description: Membrane Roofing W Insulation

Location: Roof - SW Corner - Top Layer
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
40 Cellulose
40 Fibrous Glass

Percent Non-Fibrous Material:
20

Layers not separable.

Lab No.: 7726002(L4)
Client No.: 18-RF5-54

Analyst Observation: Lt Yellow Foam
Client Description: Membrane Roofing W Insulation


Location: Roof - SW Corner - Top Layer
Facility:


Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 2/9/2024
Date Analyzed: 02/19/2024
Signature: 
Analyst: Dean Andrews

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
Report No.: 696121 - PLM
Project: Fire Station #1
Project No.: 02237853

Client: TER436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7726003 **Analyst Observation:** Black Felt **Location:** Roof - NE Corner - Bottom Layer
Client No.: 19-RF5-55 **Client Description:** Tar/Felt Roofing W Gypsum Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 50 Fibrous Glass 50

Lab No.: 7726003(L2) **Analyst Observation:** Off-White Insulation **Location:** Roof - NE Corner - Bottom Layer
Client No.: 19-RF5-55 **Client Description:** Tar/Felt Roofing W Gypsum Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 10 Cellulose 80
10 Fibrous Glass


Lab No.: 7726004 **Analyst Observation:** Black Felt **Location:** Roof - SE Corner - Bottom Layer
Client No.: 19-RF5-56 **Client Description:** Tar/Felt Roofing W Gypsum Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 50 Fibrous Glass 50

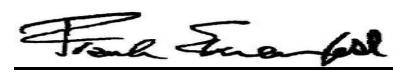
Lab No.: 7726004(L2) **Analyst Observation:** Off-White Insulation **Location:** Roof - SE Corner - Bottom Layer
Client No.: 19-RF5-56 **Client Description:** Tar/Felt Roofing W Gypsum Insulation **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 10 Cellulose 80
10 Fibrous Glass

Lab No.: 7726005 **Analyst Observation:** Black Felt **Location:** Roof - SW Corner - Bottom
Client No.: 19-RF5-57 **Client Description:** Tar/Felt Roofing W Gypsum Insulation Layer
Facility:
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 50 Fibrous Glass 50

Lab No.: 7726005(L2) **Analyst Observation:** Off-White Insulation **Location:** Roof - SW Corner - Bottom
Client No.: 19-RF5-57 **Client Description:** Tar/Felt Roofing W Gypsum Insulation Layer
Facility:
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected 10 Cellulose 80
10 Fibrous Glass

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 2/9/2024
Date Analyzed: 02/19/2024
Signature: 
Analyst: Dean Andrews

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Terracon
15620 W 113th Street
Lenexa KS 66219

Report Date: 2/19/2024
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Project: Fire Station #1
Project No.: 02237853

Client: TER436

Appendix to Analytical Report

Customer Contact:

Method: 40 CFR Appendix E to Subpart E of Part 763, interim method for the Determination of Asbestos in Bulk Insulation Samples, USEPA 600, R93-116 and NYSDOH ELAP 198.1 as needed.

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com

iATL Office Manager: wchampion@iatl.com

iATL Account Representative: Semih Kocahasan

Sample Login Notes: See Batch Sheet Attached

Sample Matrix: Bulk Building Materials

Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NYSDOH-ELAP No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. PC Trace represents a <0.25% amount. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB) See additional information at the end of this appendix.

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Project No.: 02237853

Client: TER436

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at customerservice@iatl.com.

- 1) Note: No mastic provided for analysis.
- 2) Note: Insufficient mastic provided for analysis.
- 3) Note: Insufficient material provided for analysis.
- 4) Note: Insufficient sample provided for QC reanalysis.
- 5) Note: Different material than indicated on Sample Log / Description.
- 6) Note: Sample not submitted.
- 7) Note: Attached to asbestos containing material.
- 8) Note: Received wet.
- 9) Note: Possible surface contamination.
- 10) Note: Not building material. 1% threshold may not apply.
- 11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
- 12) Note: Asbestos detected but not quantifiable.
- 13) Note: Multiple identical samples submitted, only one analyzed.
- 14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
- 15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.
- 16) Note: This sample contains >10% vermiculite mineral. See Appendix for Recommendations for Vermiculite Analysis.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites). Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

For New York State customers, NYSDOH requires disclaimers and qualifiers for various vermiculite containing samples that direct analysis via ELAP198.6 and ELAP198.8 for samples that contain >10% vermiculite mineral where ELAP198.6 may be used to evaluate the asbestos content of the material. However, any test result using ELAP198.6 will be reported with the following disclaimer: "ELAP198.6 method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing >10% vermiculite."

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional. NYS customers please follow current NYSDOH ELAP requirements per policy on subject of surfacing and vermiculite, May 6, 2016, Testing Requirements for Surfacing Material Containing Vermiculite (https://www.wadsworth.org/sites/default/files/WebDoc/I198_8_02_2.pdf)

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

- 1) **Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% for most samples.

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Project No.: 02237853

Client: TER436

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.
*With advance notice and confirmation by the laboratory.

**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

New York State Department of Health requires that samples originating from NYS that they categorize as Non-friable Organically Bound materials can only be confirmed as None Detected for asbestos by method 198.4. See the table below for a list of those materials. (ENVIRONMENTAL LABORATORY APPROVAL PROGRAM CERTIFICATION MANUAL - ITEM No. 198.1, Revision Date 5/6/16)

*Asphalt Shingles, Caulking, Ceiling Tiles with Cellulose, Duct Wrap, Glazing, Mastic, Paint Chips, Resilient Floor Tiles, Rubberized Asbestos Gaskets, Siding Shingles, Vinyl Asbestos Tile, NOB materials (other than SM-V) with <10% vermiculite, Any material (Friable or NOB other than SM-V) with >10% vermiculite.

Statistically derived uncertainty with any measure should be taken into consideration when reviewing and interpreting all reported data and results. A more comprehensive listing of accuracy, precision, and uncertainty as it impacts this method is available upon request.



Chain of Custody / Sample Log Bulk Asbestos

9000 Commerce Parkway
Suite B
Mt. Laurel, NJ 08054
Toll Free: 877 428-4285
info@iatl.com
www.iatl.com

Client: Terracon Consultants, Inc. (Terracon)
15620 West 113th St.
Lenexa, Kansas 66219

Project Name: Fire Station #1
Project No.: Lee's Summit, MO
0227 7857

Office Phone: 913-492-7777
Cell Phone: _____
FAX / Email 1: tim.easley@terracon.com

Contact 1: Timothy Easley
Contact 2: _____
FAX / Email 2: 913-492-7443

Special Instructions: Please email results to teeasley@terracon.com

Matrix:

Air Soil Bulk Other _____
 Water Paint Surface Dust / Wipe _____

Analysis Method:

PLM : Bulk Asbestos Building Materials EPA 600 / R 93-116
 PLM : Point Counting
 PC : via ELAP 198.1
 PC : 400 Points
 PC : 800 Points *
 PC : other _____ Points *
 PLM : Gravimetric Reduction
 PLM : NOB via 198.6
 PLM : Friable via EPA 600 2.3
 If <1% by PLM, to TEM via 198.4 *
 If <1% by PLM, Hold for Instructions
 PLM : Analyze Until Positive (Positive Stop)
 AUP : by Homogenous Area as Noted
 AUP : by Material Type as Noted
 PLM : Non-Building Material *, **(Dust, Wipe, Tape, Soil)
 Soil or Vermiculite Analysis *, **
 PLM: Instructions for Multi-Layered Samples
 Analyze and Report All Separable Layers per EPA 600
 Report Composite for Drywall Systems per NESHAP
 Report All Layers and Composite Where Applicable
 Only Analyze and Report Specifically Noted Layer

* Additional charge and turnaround may be required. ** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory.

Turnaround Time:

Preliminary Results Requested By... _____ Verbals FAX Email

_____ date / time
 10 Day 5 Day 3 Day 2 Day 1 Day* 12 Hour** 6 Hour** RUSH**
* End of next business day unless otherwise specified. ** Matrix Dependent. Please notify the lab before shipping.

Sample Numbers:

Client #(s): 01 - 57 iATL#(s): _____ - _____ Total: _____
(start) (end) (start) (end)

Please use your sample log to supply sampling information (ex. Volumes, areas, descriptions, locations, etc.) or download forms at iatl.com

Chain of Custody:

Relinquished (Name / Organization): o terracon
Received (Name / iATL): _____
Sample Login (Name / iATL): _____
Sample Prep (Name / iATL): _____
Analysis(Name(s) / iATL): Anders
QA/QC Review (Name / iATL): _____
Archived / Released: _____ QA/QC InterLAB Use: _____

Date: 2/19/2002 Time: 5:00pm
Date: _____ Time: _____
Date: _____ Time: _____
Date: _____ Time: _____
Date: 2/19/2002 Time: _____
Date: _____ Time: _____
Date: _____ Time: _____

IATL - By _____

Chain of Custody / Sample Log

Bulk Asbestos

9000 Commerce Parkway
Suite B
Mt. Laurel, NJ 08054
Toll Free: 877 428-4285
info@iatl.com
www.iatl.com

Client: Terracon Consultants, Inc. (Terracon)
15620 West 113th St.
Lenexa, Kansas 66219

Project Name: Fire Station #1
Project No.: 2011-0001-001
02/22/12

Office Phone: 913-492-7777
Cell Phone: _____
FAX / Email 1: tim.easley@terracon.com

Contact 1: Timothy Easley
Contact 2: _____
FAX / Email 2: 913-492-7443

Special Instructions: Please email results to teasley@terracon.com

Matrix:

<input type="checkbox"/> Air	<input type="checkbox"/> Soil	<input checked="" type="checkbox"/> Bulk	<input type="checkbox"/> Other _____
<input type="checkbox"/> Water	<input type="checkbox"/> Paint	<input type="checkbox"/> Surface Dust / Wipe	

Analysis Method:

PLM : Bulk Asbestos Building Materials EPA 600 / R 93-116

PLM : Point Counting

<input type="checkbox"/> PC : via ELAP 198.1 <input type="checkbox"/> PC : 400 Points <input type="checkbox"/> PC : 800 Points * <input type="checkbox"/> PC : other _____ Points *	<input type="checkbox"/> PLM : Analyze Until Positive (Positive Stop) <input type="checkbox"/> AUP : by Homogenous Area as Noted <input type="checkbox"/> AUP : by Material Type as Noted <input type="checkbox"/> PLM : Non-Building Material *, **(Dust, Wipe, Tape, Soil) <input type="checkbox"/> Soil or Vermiculite Analysis *, **
--	--

PLM : Gravimetric Reduction

<input type="checkbox"/> PLM : NOB via 198.6 <input type="checkbox"/> PLM : Friable via EPA 600 2.3 <input type="checkbox"/> If <1% by PLM, to TEM via 198.4 * <input type="checkbox"/> If <1% by PLM, Hold for Instructions	<input type="checkbox"/> PLM: Instructions for Multi-Layered Samples <input type="checkbox"/> Analyze and Report All Separable Layers per EPA 600 <input type="checkbox"/> Report Composite for Drywall Systems per NESHAP <input type="checkbox"/> Report All Layers and Composite Where Applicable <input type="checkbox"/> Only Analyze and Report Specifically Noted Layer
---	--

* Additional charge and turnaround may be required. ** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory.

Turnaround Time: Preliminary Results Requested By... _____ Verbals FAX Email

date / time

10 Day 5 Day 3 Day 2 Day 1 Day* 12 Hour** 6 Hour** RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. Please notify the lab before shipping.

Sample Numbers:

Client #(s): 01 - 59 iATL#(s): _____ - _____ Total: _____

(start) (end) (start) (end)

Please use your sample log to supply sampling information (ex. Volumes, areas, descriptions, locations, etc.) or download forms at iatl.com

Chain of Custody:

Relinquished (Name / Organization): <u>Terracon</u>	Date: <u>FEB 22 2012</u> Time: _____
Received (Name / iATL): _____	Date: _____ Time: _____
Sample Login (Name / iATL): _____	Date: _____ Time: _____
Sample Prep (Name / iATL): _____	Date: _____ Time: _____
Analysis (Name(s) / iATL): <u>021924</u>	Date: _____ Time: _____
QA/QC Review (Name / iATL): _____	Date: _____ Time: _____
Archived / Released: _____ QA/QC InterLAB Use: _____	Date: _____ Time: _____

iATL - By _____

Asbestos Sample Location Log

Project # - 02237353
 Building - Fire station #1 Lees Summit, MO
 Inspector(s) - Tim Eastley
 Signature - *[Signature]*

Sample Number (HA-BS Code-Sample No)	Color/Pattern/ Texture	Sample Location	Collection Date
01 - WBI - 01	gypsum wallboard	Basement - hall at vending	7725949
- - 02	w/joint compound	1st fl Break room - west side	7725950
- - 03		2nd fl hall near Day room	7725951
02 - M26 - 04	Exhaust Insulation	Basement - mechanical room	7725952
- - 05			7725953
- - 06		1st floor - Apparatus Bay NE corner	7725954
03 - SC5 - 07	white sealant	Basement mechanical room - north side	7725955
- - 08	on fiberglass pipe insulation	south side	7725956
- - 09			7725957
04 - CT4 - 10	2x4 dot pattern	Basement - Auditorium east side	7725958
- - 11	wiring tile	- center hall	7725959
- - 12		- Video Tech room	7725960
05 - CT4 - 13	2x4 ceiling	1st fl - reception area	7725961
- - 14	tile pinhole pattern	- hall east end	7725962
- - 15		2nd fl. - Day room east side	7725963
06 - CT4 - 16	2x4 smooth ceiling	Basement - Dispatch - SE	7725964
- - 17	tile	SW	7725965
- - 18		NW	7725966
07 - CT4 - 19	2x4 fissure pattern ceiling	Basement Lt room - east side	7725967
- - 20		SW	7725968
- - 21	tile	NW	7725969

Asbestos Sample Location Log

Project # - 0223 7353
 Building - Fire Station #1 Lee's Summit, MO
 Inspector(s) - Tim Easley
 Signature - *T Easley*

Sample Number (HA-BS Code-Sample No)	Color/Pattern/ Texture	Sample Location	Collection Date
08 - FT2 - 22	12"x12" white	Basement Dispatch kitchen	7725970
- - 23	w/gray floortile		7725971
- - 24	grastic		7725972
09 - FT2 - 25	12"x12" gray	Basement stair landing	7725973
- - 26	floortile grastic	1st floor stair landing at door to Apparatus Bay	7725974
- - 27			7725975
10 - FT2 - 28	12"x12" tan	2nd floor laundry room	7725976
- - 29	floor tile		7725977
- - 30	grastic		7725978
11 - FT2 - 31	12"x12" Brown	1st floor Apparatus Bay north center under cabinet	7725979
- - 32	floor tile		7725980
- - 33	grastic		7725981
12 - FLS - 34	Brown Epoxy	Basement Hall by dispatch	7725982
- - 35	flooring	1st floor hall east end	7725983
- - 36		1st floor - north center hall	7725984
13 - MAY - 37	Tan Ceramic	1st fl hall at entry	7725985
- - 38	tile grout	Lobby at south office	7725986
- - 39		center hall at restrooms	7725987
14 - MGT - 40	Carpet blue	1st fl reception area - NE	7725988
- - 41		NW Asst Chief office	7725989
- - 42		2nd floor - Day room - SE	7725990

Start

APPENDIX D
LEAD SURVEY SAMPLE RESULTS

Kansas Lead Inspector:
Timothy Easley
License No. 101001-001794

XRF Paint Test Results
Fire Station #1
Lee's Summit, Missouri

Terracon Project No. 02237353
Test Date: February 7, 2024

Reading	Result	Pb	Location	Side	Component	Substrate	Color	Condition
1	Positive	1.06	Instrument Calibration NIST 2573					
2	Positive	1.13	Instrument Calibration NIST 2573					
3	Positive	1.09	Instrument Calibration NIST 2573					
4	Positive	1.09	Instrument Calibration NIST 2573					
5	Negative	0	Instrument Calibration NIST 2570					
6	Negative	0	Instrument Calibration NIST 2570					
7	Negative	0	Instrument Calibration NIST 2570					
8	Negative	0	Instrument Calibration NIST 2570					
9	Negative	0	Basement Dispatch	North	Wall	Drywall	Gray	Good
10	Negative	0	Basement Dispatch	East	Wall	Drywall	Gray	Good
11	Negative	0	Basement Dispatch	South	Wall	Drywall	Gray	Good
12	Negative	0	Basement Dispatch	West	Wall	Drywall	Gray	Good
13	Negative	0	Basement Dispatch	East	Door	Wood	Stain	Good
14	Negative	0	Basement Dispatch	East	Door Jamb	Metal	Gray	Good
15	Negative	0	Basement Dispatch	East	Cabinet	Wood	Stain	Good
16	Negative	0	Basement Dispatch	West	Door	Wood	Gray	Good
17	Negative	0	Basement Dispatch	West	Door Jamb	Metal	Gray	Good
18	Negative	0	Basement IT Room	North	Wall	Drywall	White	Good
19	Negative	0	Basement IT Room	North	Wall	Drywall	Yellow	Good
20	Negative	0	Basement IT Room	East	Wall	Drywall	White	Good

Pb = Lead in milligrams per
square centimeter

XRF: SciAps, X550Pb
Serial No. 01340

Kansas Lead Inspector:
Timothy Easley
License No. 101001-001794

XRF Paint Test Results
Fire Station #1
Lee's Summit, Missouri

Terracon Project No. 02237353
Test Date: February 7, 2024

21	Negative	0	Basement IT Room	East	Wall	Drywall	Yellow	Good
22	Negative	0	Basement IT Room	South	Wall	Drywall	White	Good
23	Negative	0	Basement IT Room	South	Wall	Drywall	Yellow	Good
24	Negative	0	Basement IT Room	West	Door	Wood	Gray	Good
25	Negative	0	Basement IT Room	West	Door Jamb	Metal	White	Good
26	Negative	0	Basement Video Tech Room	North	Wall	Drywall	Gray	Good
27	Negative	0	Basement Video Tech Room	East	Wall	Drywall	Gray	Good
28	Negative	0	Basement Video Tech Room	South	Wall	Drywall	Gray	Good
29	Negative	0	Basement Video Tech Room	West	Wall	Drywall	Gray	Good
30	Negative	0	Basement Video Tech Room	North	Door	Wood	Gray	Good
31	Negative	0	Basement Video Tech Room	North	Door Jamb	Metal	Gray	Good
32	Negative	0.01	Basement Video Tech Room	North	Window Frame	Metal	Brown	Good
33	Negative	0	Basement EMS Office	North	Wall	Drywall	Gray	Good
34	Negative	0	Basement EMS Office	East	Wall	Drywall	Gray	Good
35	Negative	0	Basement EMS Office	South	Wall	Drywall	Gray	Good
36	Negative	0	Basement EMS Office	West	Wall	Drywall	Gray	Good
37	Negative	0	Basement EMS Office	South	Door	Wood	Gray	Good
38	Negative	0.01	Basement EMS Office	South	Door Jamb	Metal	Gray	Good
39	Negative	0.01	Basement EMS Office	East	Window Frame	Metal	Brown	Good
40	Negative	0	Basement Auditorium	North	Wall	Drywall	White	Good
41	Negative	0	Basement Auditorium	East	Wall	Drywall	White	Good

Pb = Lead in milligrams per
square centimeter

XRF: SciAps, X550Pb
Serial No. 01340

Kansas Lead Inspector:
Timothy Easley
License No. 101001-001794

XRF Paint Test Results
Fire Station #1
Lee's Summit, Missouri

Terracon Project No. 02237353
Test Date: February 7, 2024

42	Negative	0	Basement Auditorium	South	Wall	Drywall	White	Good
43	Negative	0	Basement Auditorium	West	Wall	Drywall	White	Good
44	Negative	0	Basement Auditorium	South	Wall	Concrete Block	White	Good
45	Negative	0	Basement Auditorium	West	Door	Wood	Gray	Good
46	Negative	0.01	Basement Auditorium	West	Door Jamb	Metal	Gray	Good
47	Negative	0	Basement Auditorium	East	Door	Wood	Gray	Good
48	Negative	0.01	Basement Auditorium	East	Door Jamb	Metal	Gray	Good
49	Negative	0	Basement Auditorium Sleeping Room	North	Wall	Drywall	Gray	Good
50	Negative	0	Basement Auditorium Sleeping Room	East	Wall	Drywall	Gray	Good
51	Negative	0	Basement Auditorium Sleeping Room	South	Wall	Drywall	Gray	Good
52	Negative	0	Basement Auditorium Sleeping Room	West	Wall	Drywall	Gray	Good
53	Negative	0	Basement Auditorium Sleeping Room	East	Soffit	Drywall	Gray	Good
54	Negative	0	Basement Auditorium Sleeping Room		Floor	Concrete	Gray	Peeling
55	Negative	0	Basement Auditorium Sleeping Room	North	Door	Wood	Gray	Good
56	Negative	0	Basement Auditorium Sleeping Room	North	Door Jamb	Metal	Gray	Good
57	Negative	0	Basement Men's Restroom	North	Wall	Drywall	Gray	Good
58	Negative	0	Basement Men's Restroom	East	Wall	Drywall	Gray	Good
59	Negative	0	Basement Men's Restroom	South	Wall	Drywall	Gray	Good
60	Negative	0	Basement Men's Restroom	West	Wall	Drywall	Gray	Good
61	Negative	0	Basement Men's Restroom	West	Door	Wood	Gray	Good
62	Negative	0.02	Basement Men's Restroom	West	Door Jamb	Metal	Gray	Good

Pb = Lead in milligrams per
square centimeter

XRF: SciAps, X550Pb
Serial No. 01340

Kansas Lead Inspector:
 Timothy Easley
 License No. 101001-001794

XRF Paint Test Results
 Fire Station #1
 Lee's Summit, Missouri

Terracon Project No. 02237353
 Test Date: February 7, 2024

63	Negative	0	Basement Hall	North	Wall	Drywall	Gray	Good
64	Negative	0	Basement Hall	East	Wall	Drywall	Gray	Good
65	Negative	0	Basement Hall	South	Wall	Drywall	Gray	Good
66	Negative	0	Basement Hall	West	Wall	Drywall	Gray	Good
67	Negative	0	Basement Hall vending		Floor	Concrete	Tan	Peeling
68	Negative	0.01	Basement Hall	West	Window Frame	Metal	Gray	Good
69	Negative	0	South Stair	North	Wall	Drywall	Tan	Good
70	Negative	0	South Stair	South	Wall	Concrete	Tan	Good
71	Negative	0	South Stair	West	Wall	Drywall	Tan	Good
72	Negative	0	South Stair	South	Wall	Concrete Block	Tan	Good
73	Negative	0	South Stair		Stair Tread	Concrete	Gray	Good
74	Negative	0.02	South Stair		Stair Riser	Metal	Gray	Good
75	Negative	0.08	South Stair		Stair Stringer	Metal	Gray	Good
76	Negative	0.01	South Stair		Stair Handrail	Metal	Gray	Good
77	Negative	0	1st Floor Plans Examiner Office	North	Wall	Drywall	Gray	Good
78	Negative	0	1st Floor Plans Examiner Office	East	Wall	Drywall	Gray	Good
79	Negative	0	1st Floor Plans Examiner Office	South	Wall	Drywall	Gray	Good
80	Negative	0	1st Floor Plans Examiner Office	West	Wall	Drywall	Gray	Good
81	Negative	0	1st Floor Plans Examiner Office	South	Door	Wood	Gray	Good
82	Negative	0	1st Floor Plans Examiner Office	South	Door Jamb	Metal	Gray	Good
83	Negative	0	1st Floor EMS Storage	North	Wall	Drywall	Tan	Good

Pb = Lead in milligrams per square centimeter

XRF: SciAps, X550Pb
 Serial No. 01340

Kansas Lead Inspector:
Timothy Easley
License No. 101001-001794

XRF Paint Test Results
Fire Station #1
Lee's Summit, Missouri

Terracon Project No. 02237353
Test Date: February 7, 2024

84	Negative	0	1st Floor EMS Storage	East	Wall	Drywall	White	Good
85	Negative	0	1st Floor EMS Storage	South	Wall	Drywall	Tan	Good
86	Negative	0	1st Floor EMS Storage	West	Wall	Drywall	White	Good
87	Negative	0.02	1st Floor EMS Storage	East	Door	Wood	Brown	Good
88	Negative	0.01	1st Floor EMS Storage	East	Door Jamb	Metal	Brown	Good
89	Negative	0	1st Floor Break Room	North	Wall	Drywall	Tan	Good
90	Negative	0	1st Floor Break Room	East	Wall	Drywall	Tan	Good
91	Negative	0	1st Floor Break Room	South	Wall	Drywall	Tan	Good
92	Negative	0	1st Floor Break Room	West	Wall	Drywall	Tan	Good
93	Negative	0.1	1st Floor Break Room	East	Door	Metal	Blue	Good
94	Negative	0.01	1st Floor Break Room	East	Door Jamb	Metal	Blue	Good
95	Negative	0	1st Floor Assistant Chief NE office	North	Wall	Drywall	Gray	Good
96	Negative	0	1st Floor Assistant Chief NE office	East	Wall	Drywall	Gray	Good
97	Negative	0	1st Floor Assistant Chief NE office	South	Wall	Drywall	Gray	Good
98	Negative	0	1st Floor Assistant Chief NE office	West	Wall	Drywall	Gray	Good
99	Negative	0	1st Floor Assistant Chief NE office	East	Door	Wood	Blue	Good
100	Negative	0	1st Floor Assistant Chief NE office	East	Door Jamb	Metal	Blue	Good
101	Negative	0	1st Floor Janitor Closet	North	Wall	Drywall	White	Good
102	Negative	0	1st Floor Janitor Closet	East	Wall	Drywall	White	Good
103	Negative	0	1st Floor Janitor Closet	West	Wall	Drywall	White	Good
104	Negative	0	1st Floor Janitor Closet		Floor	Concrete	Gray	Peeling

Pb = Lead in milligrams per
square centimeter

XRF: SciAps, X550Pb
Serial No. 01340

Kansas Lead Inspector:
Timothy Easley
License No. 101001-001794

XRF Paint Test Results
Fire Station #1
Lee's Summit, Missouri

Terracon Project No. 02237353
Test Date: February 7, 2024

105	Negative	0	1st Floor Janitor Closet	East	Door	Wood	Blue	Good
106	Negative	0	1st Floor Janitor Closet	East	Door Jamb	Metal	Blue	Good
107	Negative	0	1st Floor Hall	North	Wall	Drywall	Tan	Good
108	Negative	0	1st Floor Hall	East	Wall	Drywall	Tan	Good
109	Negative	0	1st Floor Hall	South	Wall	Drywall	Tan	Good
110	Negative	0	1st Floor Hall	West	Wall	Drywall	Tan	Good
111	Negative	0	1st Floor Men's Restroom	North	Wall	Drywall	Tan	Good
112	Negative	0	1st Floor Men's Restroom	East	Wall	Drywall	Tan	Good
113	Negative	0	1st Floor Men's Restroom	South	Wall	Drywall	Tan	Good
114	Negative	0	1st Floor Men's Restroom	West	Wall	Drywall	Tan	Good
115	Negative	0.01	1st Floor Men's Restroom	South	Door	Wood	Blue	Good
116	Negative	0	1st Floor Men's Restroom	South	Door Jamb	Metal	Blue	Good
117	Negative	0	1st floor Hall Closet by Restrooms	South	Door	Wood	Stain	Good
118	Negative	0	1st floor Hall Closet by Restrooms	South	Door Jamb	Wood	Stain	Good
119	Negative	0	1st floor Hall Closet by Restrooms	South	Door casing	Wood	Stain	Good
120	Negative	0	1st Floor Assistant Chief North Center office	North	Wall	Drywall	Tan	Good
121	Negative	0	1st Floor Assistant Chief North Center office	East	Wall	Drywall	Tan	Good
122	Negative	0	1st Floor Assistant Chief North Center office	South	Wall	Drywall	Tan	Good
123	Negative	0	1st Floor Assistant Chief North Center office	West	Wall	Drywall	Tan	Good
124	Negative	0	1st Floor Assistant Chief North Center office	South	Door	Wood	Black	Good
125	Negative	0	1st Floor Assistant Chief North Center office	South	Door Jamb	Metal	Black	Good

Pb = Lead in milligrams per
square centimeter

XRF: SciAps, X550Pb
Serial No. 01340

Kansas Lead Inspector:
Timothy Easley
License No. 101001-001794

XRF Paint Test Results
Fire Station #1
Lee's Summit, Missouri

Terracon Project No. 02237353
Test Date: February 7, 2024

126	Negative	0	1st Floor Assistant Chief NW office	North	Wall	Drywall	Tan	Good
127	Negative	0	1st Floor Assistant Chief NW office	East	Wall	Drywall	Tan	Good
128	Negative	0	1st Floor Assistant Chief NW office	South	Wall	Drywall	Tan	Good
129	Negative	0	1st Floor Assistant Chief NW office	West	Wall	Drywall	Tan	Good
130	Negative	0	1st Floor Assistant Chief NW office	South	Door	Wood	Black	Good
131	Negative	0	1st Floor Assistant Chief NW office	South	Door Jamb	Metal	Black	Good
132	Negative	0	1st Floor Fire Chief office	North	Wall	Drywall	Tan	Good
133	Negative	0	1st Floor Fire Chief office	East	Wall	Drywall	Tan	Good
134	Negative	0	1st Floor Fire Chief office	South	Wall	Drywall	Tan	Good
135	Negative	0	1st Floor Fire Chief office	West	Wall	Drywall	Tan	Good
136	Negative	0	1st Floor Fire Chief office	South	Door	Wood	Brown	Good
137	Negative	0	1st Floor Fire Chief office	South	Door Jamb	Metal	Brown	Good
138	Negative	0	1st Floor Reception office	North	Wall	Drywall	Tan	Good
139	Negative	0	1st Floor Reception office	East	Wall	Drywall	Purple	Good
140	Negative	0	1st Floor Reception office	South	Wall	Drywall	Tan	Good
141	Negative	0	1st Floor Reception office	West	Wall	Drywall	Tan	Good
142	Negative	0	1st Floor Kitchen	North	Wall	Drywall	Tan	Good
143	Negative	0	1st Floor Kitchen	East	Wall	Drywall	Tan	Good
144	Negative	0	1st Floor Kitchen	South	Wall	Drywall	Tan	Good
145	Negative	0	1st Floor Kitchen	West	Wall	Drywall	Tan	Good
146	Negative	0	1st Floor Kitchen	South	Door	Wood	Black	Good

Pb = Lead in milligrams per
square centimeter

XRF: SciAps, X550Pb
Serial No. 01340

Kansas Lead Inspector:
 Timothy Easley
 License No. 101001-001794

XRF Paint Test Results
 Fire Station #1
 Lee's Summit, Missouri

Terracon Project No. 02237353
 Test Date: February 7, 2024

147	Negative	0.01	1st Floor Kitchen	South	Door Jamb	Metal	Black	Good
148	Negative	0	1st Floor Deputy Chief office	North	Wall	Drywall	White	Good
149	Negative	0	1st Floor Deputy Chief office	East	Wall	Drywall	White	Good
150	Negative	0	1st Floor Deputy Chief office	South	Wall	Drywall	White	Good
151	Negative	0	1st Floor Deputy Chief office	West	Wall	Drywall	White	Good
152	Negative	0	Apparatus Bay	North	Wall	Concrete Block	Tan	Good
153	Negative	0	Apparatus Bay	East	Wall	Concrete	Tan	Peeling
154	Negative	0	Apparatus Bay	South	Wall	Concrete	Tan	Peeling
155	Negative	0	Apparatus Bay	West	Wall	Concrete	Tan	Peeling
156	Negative	0	Apparatus Bay	North	Wall	Concrete	Yellow	Good
157	Negative	0	Apparatus Bay	North	Wall	Concrete	Tan	Good
158	Negative	0	Apparatus Bay	North	Wall	Concrete	Blue	Good
159	Negative	0	Apparatus Bay	North	Drain Pipe	Metal	White	Peeling
160	Negative	0	Stair to 2nd Floor	North	Wall	Drywall	Tan	Good
161	Negative	0	Stair to 2nd Floor	South	Wall	Concrete Block	Tan	Good
162	Negative	0	Stair to 2nd Floor	West	Wall	Drywall	Tan	Good
163	Negative	0	Stair to 2nd Floor		Stair Tread	Concrete	Gray	Good
164	Negative	0.01	Stair to 2nd Floor		Stair Riser	Metal	Gray	Good
165	Negative	0.04	Stair to 2nd Floor		Stair Stringer	Metal	Gray	Good
166	Negative	0.07	Stair to 2nd Floor		Stair Handrail	Metal	Gray	Good
167	Negative	0	2nd Floor NW office	North	Wall	Drywall	Tan	Good

Pb = Lead in milligrams per
 square centimeter

XRF: SciAps, X550Pb
 Serial No. 01340

Kansas Lead Inspector:
Timothy Easley
License No. 101001-001794

XRF Paint Test Results
Fire Station #1
Lee's Summit, Missouri

Terracon Project No. 02237353
Test Date: February 7, 2024

168	Negative	0	2nd Floor NW office	East	Wall	Drywall	Tan	Good
169	Negative	0	2nd Floor NW office	South	Wall	Drywall	Tan	Good
170	Negative	0	2nd Floor NW office	West	Wall	Drywall	Tan	Good
171	Negative	0	2nd Floor NW office	South	Door	Wood	Gray	Good
172	Negative	0	2nd Floor NW office	South	Door Jamb	Metal	Gray	Good
173	Negative	0	2nd Floor SW Training Room	North	Wall	Drywall	Gray	Good
174	Negative	0	2nd Floor SW Training Room	East	Wall	Drywall	Gray	Good
175	Negative	0	2nd Floor SW Training Room	West	Wall	Drywall	Gray	Good
176	Negative	0.01	2nd Floor SW Training Room	North	Door	Wood	Gray	Good
177	Negative	-0.01	2nd Floor SW Training Room	North	Door Jamb	Metal	Gray	Good
178	Negative	0	2nd Floor Day Room	North	Wall	Drywall	Gray	Good
179	Negative	0	2nd Floor Day Room	East	Wall	Drywall	Gray	Good
180	Negative	0	2nd Floor Day Room	South	Wall	Drywall	Gray	Good
181	Negative	0	2nd Floor Day Room	West	Wall	Drywall	Gray	Good
182	Negative	0.02	2nd Floor Day Room	South	Window Frame	Metal	Gray	Good
183	Negative	0	2nd Floor Kitchen	North	Wall	Drywall	Gray	Good
184	Negative	0	2nd Floor Kitchen	East	Wall	Drywall	Gray	Good
185	Negative	0	2nd Floor Kitchen	South	Wall	Drywall	Gray	Good
186	Negative	0	2nd Floor Kitchen	West	Wall	Drywall	Gray	Good
187	Negative	0	2nd Floor Kitchen	North	Cabinet	Wood	Gray	Good
188	Negative	0	2nd Floor Janitor Closet	North	Wall	Drywall	Yellow	Good

Pb = Lead in milligrams per
square centimeter

XRF: SciAps, X550Pb
Serial No. 01340

Kansas Lead Inspector:
Timothy Easley
License No. 101001-001794

XRF Paint Test Results
Fire Station #1
Lee's Summit, Missouri

Terracon Project No. 02237353
Test Date: February 7, 2024

189	Negative	0	2nd Floor Janitor Closet	East	Wall	Drywall	Yellow	Good
190	Negative	0	2nd Floor Janitor Closet	South	Wall	Drywall	Yellow	Good
191	Negative	0	2nd Floor Janitor Closet	West	Wall	Drywall	Yellow	Good
192	Negative	0	2nd Floor Janitor Closet	North	Door	Wood	Gray	Good
193	Negative	0.01	2nd Floor Janitor Closet	North	Door Jamb	Metal	Gray	Good
194	Negative	0	2nd Floor Bunk Room	North	Wall	Drywall	Gray	Good
195	Negative	0	2nd Floor Bunk Room	East	Wall	Drywall	Gray	Good
196	Negative	0	2nd Floor Bunk Room	South	Wall	Drywall	Gray	Good
197	Negative	0	2nd Floor Bunk Room	West	Wall	Drywall	Gray	Good
198	Negative	0	2nd Floor Bunk Room	West	Door	Wood	Gray	Good
199	Negative	0	2nd Floor Bunk Room	West	Door Jamb	Wood	Gray	Good
200	Negative	0	2nd Floor Bunk Room	West	Door casing	Wood	Stain	Good
201	Negative	0	2nd Floor Bunk Room	North	Wall	Drywall	Gray	Good
202	Negative	0	2nd Floor Bunk Room	East	Wall	Drywall	Gray	Good
203	Negative	0	2nd Floor Bunk Room	South	Wall	Drywall	Gray	Good
204	Negative	0	2nd Floor Bunk Room	West	Wall	Drywall	Gray	Good
205	Negative	0	2nd Floor Bunk Room	North	Door	Wood	Gray	Good
206	Negative	0	2nd Floor Bunk Room	North	Door Jamb	Wood	Gray	Good
207	Negative	0	2nd Floor Bunk Room	North	Door casing	Wood	Stain	Good
208	Negative	0	2nd Floor Excercise Room	North	Wall	Drywall	Gray	Good
209	Negative	0	2nd Floor Excercise Room	East	Wall	Drywall	Gray	Good

Pb = Lead in milligrams per
square centimeter

XRF: SciAps, X550Pb
Serial No. 01340

Kansas Lead Inspector:
 Timothy Easley
 License No. 101001-001794

XRF Paint Test Results
 Fire Station #1
 Lee's Summit, Missouri

Terracon Project No. 02237353
 Test Date: February 7, 2024

210	Negative	0	2nd Floor Excercise Room	South	Wall	Drywall	Gray	Good
211	Negative	0	2nd Floor Excercise Room	West	Wall	Drywall	Gray	Good
212	Negative	0.01	2nd Floor Excercise Room	South	Door	Wood	Gray	Good
213	Negative	0	2nd Floor Excercise Room	South	Door Jamb	Metal	Gray	Good
214	Negative	0	2nd Floor Men's Restroom	North	Wall	Drywall	Gray	Good
215	Negative	0	2nd Floor Men's Restroom	East	Wall	Drywall	Gray	Good
216	Negative	0	2nd Floor Men's Restroom	South	Wall	Drywall	Gray	Good
217	Negative	0	2nd Floor Men's Restroom	West	Wall	Drywall	Gray	Good
218	Negative	0	2nd Floor Men's Restroom	North	Door	Wood	Gray	Good
219	Negative	0	2nd Floor Men's Restroom	North	Door Jamb	Metal	Gray	Good
220	Negative	0	Exterior	North	Window Well	Concrete	White	Good
221	Negative	0	Exterior	North	Door	Metal	White	Good
222	Negative	0	Exterior	North	Door Jamb	Metal	White	Good
223	Negative	0	Exterior	North	Stair Wall	Concrete	Tan	Good
224	Negative	0	Exterior	North	Stair Handrail	Metal	Brown	Good
225	Negative	0	Exterior	East	Wall	Stone	Tan	Good
226	Negative	0	Exterior	East	Column	Concrete	Tan	Good
227	Negative	0	Exterior	South	Door	Metal	Tan	Good
228	Negative	0	Exterior	South	Door Jamb	Metal	Tan	Good
229	Negative	0	Exterior	West	Column	Concrete	Tan	Good
230	Negative	0	Exterior	West	Column	Concrete	Tan	Good

Pb = Lead in milligrams per
 square centimeter

XRF: SciAps, X550Pb
 Serial No. 01340

Kansas Lead Inspector:
Timothy Easley
License No. 101001-001794

XRF Paint Test Results
Fire Station #1
Lee's Summit, Missouri

Terracon Project No. 02237353
Test Date: February 7, 2024

231	Negative	0	Exterior	West	Window Well	Concrete	White	Good
232	Positive	1.1	Instrument Calibration NIST 2573					
233	Positive	1.06	Instrument Calibration NIST 2573					
234	Positive	1.1	Instrument Calibration NIST 2573					
235	Negative	0	Instrument Calibration NIST 2570					
236	Negative	0	Instrument Calibration NIST 2570					
237	Negative	0	Instrument Calibration NIST 2570					

Pb = Lead in milligrams per
square centimeter

XRF: SciAps, X550Pb
Serial No. 01340

APPENDIX E
LICENSES AND CERTIFICATIONS

CERTIFICATION NUMBER:
7011101923MOIR3337

THIS CERTIFIES
Timothy E Easley
HAS COMPLETED THE CERTIFICATION

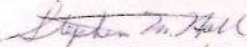
REQUIREMENTS FOR
Inspector



APPROVED: **11/03/2023**

TRAINING DATE: **10/19/2023**

EXPIRES: **11/03/2024**


Director of Air Pollution Control Program

The holder of this card is certified to conduct the specified occupation in conjunction with an asbestos abatement project under the certification requirements, in RSMo, 10 CSR 10-6.250.

It is unlawful for any person to use this card other than the individual to whom it is issued or in any manner inconsistent with the law.

Violations of Missouri State Rule 10 CSR 10-6.080, "Emission Standards for Hazardous Air Pollutants," which adopts by reference 40 CFR, Part 61, Subpart M, the "National Emission Standards for Asbestos," are subject to fines of not more than \$10,000 per day per violation. This Missouri State Certification is subject to review and the director may deny, suspend or revoke this certification per RSMo, chapter 643.230.

If found, please return to:



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102
Phone: (573)751-4817 Fax: (573)751-2706
www.dnr.mo.gov/env/apcp

STATE OF MISSOURI
DEPARTMENT OF HEALTH AND SENIOR SERVICES

LEAD OCCUPATION LICENSE REGISTRATION

Issued to:

Timothy E. Easley

The person, firm or corporation whose name appears on this certificate has fulfilled the requirements for licensure as set forth in the Missouri Revised Statutes 701.300-701.338, as long as not suspended or revoked, and is hereby authorized to engage in the activity listed below.

Lead Inspector
Category of License

Issuance Date: **10/1/2022**
Expiration Date: **10/1/2024**
License Number: **101001-001794**



Paula F. Nickelson

Paula F. Nickelson
Acting Director
Department of Health and Senior Services

Lead Licensing Program, PO Box 570, Jefferson City, MO 65102

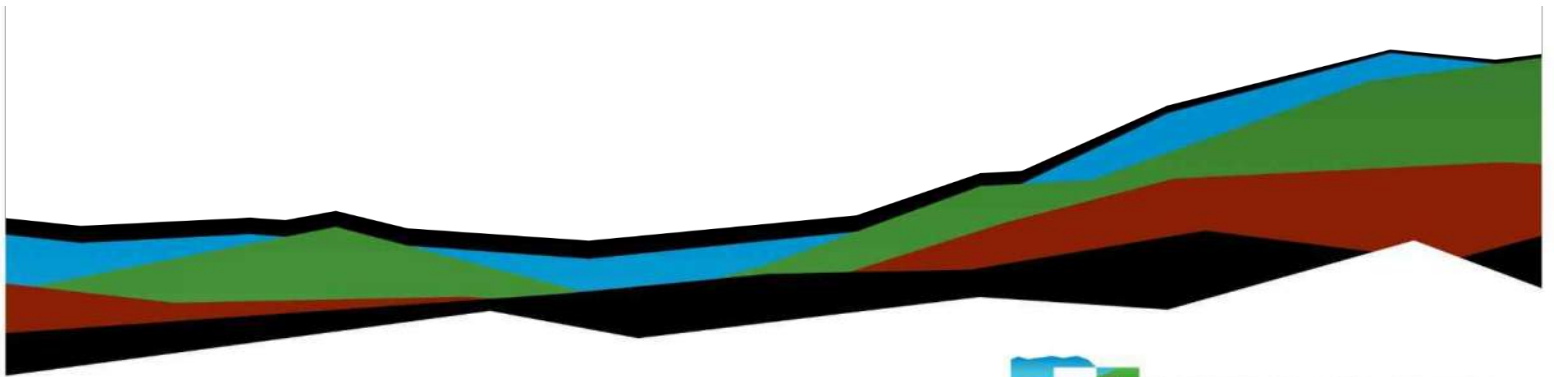
Lee's Summit Fire Station No. 1

Geotechnical Engineering Report

March 7, 2024 | Terracon Project No. 02235318

Prepared for:

WSKF Architects
North Kansas City, Missouri 64116



Nationwide
[Terracon.com](https://www.terracon.com)

- Facilities
- Environmental
- Geotechnical
- Materials



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Lenexa, KS 66219
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March 7, 2024

WSKF Architects
110 Armour Road
North Kansas City, Missouri 64116

Attn: Dalyn Novak, RA, NCARB, LEED AP
816.300.4101
dvovak@wskfarch.com

Re: Geotechnical Engineering Report
Lee's Summit Fire Station No. 1
207 SE Douglas Street
Lee's Summit, Missouri
Terracon Project No. 02235318

Dear Ms. Novak:

We have completed a subsurface exploration and geotechnical engineering evaluation for the referenced project in general accordance with Terracon Proposal No. P02235318 dated October 30, 2023. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, and pavements for the project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

Daniel A. Barnett, P.G.
Project Geologist

Kole C. Berg, P.E.
Senior Consultant
Missouri: 2002016417



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Exploration and Laboratory Results

Supporting Information

Geotechnical Engineering Report

Lee's Summit Fire Station No. 1 | Lee's Summit, Missouri
March 7, 2024 | Terracon Project No. 02235318



Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the  Terracon logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

Refer to each individual Attachment for a listing of contents.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed Fire Station No. 1 planned at 207 SE Douglas Street in Lee's Summit, Missouri. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil and rock conditions
- Groundwater conditions
- IBC seismic site class
- Site preparation and earthwork
- Demolition considerations
- Foundations
- Floor slabs
- Lateral earth pressure parameters
- Pavements

Drawings showing the site and boring locations are shown on the attached [Site Location Plan](#) and [Exploration Plan](#). The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs and test data sheets in [Exploration Results](#).

Project Description

Item	Description
Information Provided	An email request for proposal was provided by McClure on October 24, 2023. The request included a site layout plan and information about the proposed fire station building.
Project Description	The project consists of demolition of the existing fire station building and construction of a new fire station building.
Proposed Building	The proposed building will be a two-story, steel-framed structure with a basement level.
Finished Floor Elevation (FFE)	The FFE of the building was not provided. We have assumed the first floor FFE will be within 3 feet of existing grades.

Item	Description
Maximum Loads	<p>Anticipated structural loads were not provided. We have assumed the following maximum loads based on our experience with similar projects.</p> <ul style="list-style-type: none"> ■ Columns: 300 kips ■ Walls: 5 kips per linear foot (klf) ■ Slabs: 250 pounds per square foot (psf)
Grading	<p>A site grading plan was not provided. We have considered no more than 3 feet of cut/fill will be required to develop final grades. Deeper excavation will be required in the basement area.</p>
Below-Grade Structures	<p>The building will have a basement level that extends about 10 feet below the first floor FFE. We anticipate the building will also have below-grade elevator pit walls.</p> <p>The recommendations provided in this report are based on our understanding that the basement will extend beneath the entire building footprint. If a slab-on-grade portion is planned, Terracon should be notified so we can provide additional recommendations regarding the effects of expansive clay soils on slabs supported at/near existing grades.</p>
Free-Standing Retaining Walls	<p>No free-standing retaining walls are planned.</p>
Pavements	<p>We anticipate new pavements will be constructed. No information regarding anticipated vehicle types, axle loads, or traffic volumes was provided. Based on our experience with other fire station projects, we anticipate that asphalt and concrete pavements will be used. We anticipate the pavements will be utilized primarily by fire trucks and personal vehicles.</p>

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

Site Conditions

Item	Description
Project Location	The existing fire station is located at 207 SE Douglas Street in Lee's Summit, Missouri. Approximate Latitude/Longitude: 38.9137, -94.3766 (See Site Location)
Existing Improvements	The project site is occupied by an existing fire station building, and associated pavements. The existing structures will be demolished to accommodate new construction.
Existing Topography	A topographic site plan was not provided. Based on our review of topography using an online mapping application, site grades slope gradually down to the northeast. Surface elevations range from approximately 1,022 to 1,028 feet.
Geology	The project site is underlain by rock units of the Pennsylvanian Series, Missourian Stage, Kansas City Group, Chanute Shale Formation in the time stratigraphic unit age classification.

Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based on the subsurface exploration, laboratory data, geologic setting, and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical evaluation. Conditions observed at each boring location are indicated on the individual logs. The individual logs are in the [Exploration Results](#) and the GeoModel is in the [Figures](#) attachment of this report.

Model Layer	Layer Name	General Description
1	Existing Fill	Fat clay with variable amounts of gravel
2	Residual Clay	Fat clay, medium stiff to very stiff
3	Bedrock	Highly to moderately weathered shale with sandstone seams

The borings were observed during drilling and shortly after completion of drilling for the presence and level of water. Groundwater was observed at depths of approximately 18½ feet to 19 feet in Borings B-1, B-2, and B-3. Groundwater was not encountered in Boring B-4 at these times. A longer period of time may be required for groundwater to

develop and stabilize in a borehole. Longer term observations in piezometers or observation wells, sealed from the influence of surface water, are often required to define groundwater levels.

Groundwater levels may fluctuate due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the borings were performed. "Perched" water could occur above lower permeability soil layers and/or near the soil/bedrock interface, and "trapped" water could be present within existing fill materials. Therefore, groundwater conditions at other times may be different than the conditions encountered in our exploratory borings. The potential for water level fluctuations and perched water should be considered when developing design and construction plans and specifications for the project.

Seismic Site Class

The seismic design requirements for buildings and other structures are based on Seismic Design Category. The Site Class is required to determine the Seismic Design Category for a structure. The Site Class is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the soil and bedrock encountered in our subsurface exploration, **Seismic Site Class C** can be considered for design of the project. The subsurface exploration at this site extended to a maximum depth of 19½ feet. The site properties below the maximum boring depth were estimated based on our experience and knowledge of geologic conditions of the general area. Upon request, we could perform deeper borings or geophysical testing to confirm the conditions below the current maximum boring depth.

Geotechnical Overview

Based on the anticipated basement floor elevation of the proposed building, and the depth to shale bedrock encountered in our exploratory borings, it appears feasible to support the building on footing foundations that bear on suitable shale bedrock.

The site is currently occupied by an existing fire station building. Existing foundations, walls, slabs, and associated utilities should be removed prior to the construction of the new building. Care should be taken to thoroughly remove all existing improvements that would interfere with the proposed new construction. Excavations created by demolition/removal of existing features should be backfilled with engineered fill that is placed and compacted as recommended in this report. The demolition contractor should be aware of project requirements for complete removal of existing features, observation/testing of the base of demolition excavations prior to backfilling, use of

appropriate backfill materials, and proper placement/compaction/testing of backfill materials so that removal of the demolition contractor's backfill materials and replacement under controlled conditions is not necessary when building construction commences.

Existing undocumented fill materials were encountered at the boring locations. Existing fill materials could also be present within the footprint of the existing building and within utility trenches. Based on field and laboratory test data, it appears that some compactive effort was applied to portions of the fill encountered at the boring locations. However, no documentation regarding placement and compaction of the fill was provided for our review. Structures supported on or above undocumented fill could experience larger-than-normal settlements, resulting in cracking and other damage to the new structures. Any undocumented fill encountered within the planned new building area should be removed and replaced with engineered fill. Existing fill may be left in place below new pavement areas provided it is observed, tested, and approved by Terracon during construction.

Underground utility lines are likely present within the proposed construction area. If these utilities are to remain in place, we recommend that the backfill be tested by a representative of Terracon at the time of construction. If these utilities are to be relocated, the resulting trenches should be overexcavated, backfilled, and tested in accordance with the recommendations in the **Earthwork** section of this report.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the **Exploration Results**), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

Earthwork

Site preparation, excavation, subgrade preparation, and placement of engineered fill should follow the recommendations presented in this section. The recommendations presented for design and construction of earth-supported elements including foundations, slabs, and pavements are contingent upon the recommendations outlined in this section being followed. We recommend earthwork on this project be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of subgrade preparation, engineered fill, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

Site Preparation

The site is currently occupied by existing structures. Demolition of the existing structures should include removal of existing foundations, walls, floor slabs, pavements, sidewalks, and any loose, soft, otherwise unsuitable materials. Undocumented fill materials associated with the former structures should also be removed from the building area during demolition and initial site preparation. The demolition contractor should be aware of project requirements for complete removal of existing features, observation/testing of the base of demolition excavations prior to backfilling, use of appropriate backfill materials, and proper placement/compaction/testing of backfill materials so that removal of the demolition contractor's backfill materials and replacement under controlled conditions is not necessary when building construction commences.

Where vegetation/topsoil is currently present within proposed construction areas, all vegetation and organic soils should be stripped. Organic soils removed during site preparation should not be used as fill beneath the proposed building and pavement areas.

Following demolition of existing features and any necessary undercutting, the exposed materials should be proofrolled, where practical. A Terracon representative should observe the proofrolling. Proofrolling can be accomplished using a loaded tandem-axle dump truck with a gross weight of at least 20 tons, or similarly loaded equipment. Areas that display excessive deflection (pumping) or rutting during proofroll operations should be improved by scarification/compaction or by removal and replacement with engineered fill. In areas where proofrolling is not practical (such as within the basement excavation), the subgrade should be evaluated by a Terracon representative using visual observation and hand probing methods.

Excavation

Excavation of shale bedrock will be required to develop the planned basement floor elevation. In our experience, highly weathered shale that can be easily penetrated with a flight auger can typically be excavated using track-hoes with rock teeth or ripper equipped dozers. Excavation of harder shale is more difficult and may require large pneumatic breakers or other rock excavating techniques to complete the excavations. Excavation of rock formations in confined excavations (such as utility trenches or footings) is usually more difficult.

Fill Material Types

Fill required to achieve design grade should be classified as engineered fill and general fill. Engineered fill is material used below, or within 10 feet of structures. General fill is material used to achieve grade outside of these areas.

Reuse of On-Site Soil: Material property requirements for on-site soil for use as engineered fill are noted in the table below:

Fill Type	USCS Classification	Acceptable Location for Placement
Native Fat Clays and/or Lean to Fat Clays (LL≥45 and/or PI≥23)	CH, CL/CH	Pavement and landscape areas
Existing Fill	CH	Pavement and landscape areas Existing fill should be observed, tested and approved by Terracon. Organics, rock/rubble fragments larger than 3 inches, debris, or other unsuitable materials should be removed prior to re-use of the existing fill in engineered fill sections.
Shale	N/A	See discussion below

Excavation of shale bedrock will likely be required in the basement area of the building. Shale excavated from on-site should not be re-used as fill material (including as utility trench backfill below the building footprint or pavement areas). Although rock materials could be re-used if they are processed by crushing to a relatively small (3-inch minus) maximum particle size, it is likely not economical to set up a rock crushing operation on a project site of this size. In addition, quality control (field testing of moisture content and density) of compacted fill is difficult with rock materials. It would be more practical for this project to export any excavated shale fragments off-site and replace them with imported crushed stone aggregate or on-site clay, particularly for basement wall backfill and utility trench backfill.

Imported Fill Materials: Imported fill materials should meet the following material property requirements. Regardless of its source, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade.

Fill Type ¹	USCS Classification	Acceptable Location for Placement
Densely Graded Granular	GM ²	All locations and elevations, except where free-draining material is required
Free Draining Granular ³	GW, GP, SW, SP	Where free-draining material is required

1. Engineered fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade.
2. MoDOT Type 5 or an approved alternate gradation of crushed limestone aggregate
3. Granular materials with less than 5 percent fines (material passing the #200 sieve), such as ASTM C33 Size No. 57 aggregate or an approved alternate gradation

Fill Placement and Compaction Requirements

Engineered fill and general fill should meet the following compaction requirements.

Item	Engineered Fill	General Fill
Maximum Lift Thickness	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (i.e., a jumping jack or plate compactor) is used	Same as engineered fill
Minimum Compaction Requirements ^{1,2,3}	95% of max. above foundations, below floor slabs, and below pavements	92% of max.
Water Content Range ¹	Low plasticity cohesive: -2% to +3% of optimum High plasticity cohesive: 0 to +4% of optimum Granular: -3% to +3% of optimum	As required to achieve min. compaction requirements

1. Maximum density and optimum water content as determined by the standard Proctor test (ASTM D698)
2. High plasticity cohesive fill should not be compacted to more than 100% of standard Proctor maximum dry density.
3. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D4253 and D4254). Materials not amenable to density testing should be placed and compacted to a stable condition observed by the Geotechnical Engineer or representative.

Utility Trench Backfill

Any soft or unsuitable materials encountered at the bottom of utility trench excavations should be removed and replaced with engineered fill or bedding material in accordance with public works specifications for the utility to be supported. This recommendation is particularly applicable to utility work requiring grade control and/or in areas where subsequent grade raising could cause settlement in the subgrade supporting the utility. Trench excavation should not be conducted below a downward 1:1 projection from existing foundations without engineering review of shoring requirements and geotechnical observation during construction.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Flooding or jetting for placement and compaction of backfill is not recommended.

Utility trenches are a common source of water infiltration and migration. Utility trenches that penetrate beneath the building should be effectively sealed to restrict water intrusion and flow through the trenches, which could migrate below the building. Each trench should be provided with an effective trench plug that extends at least 5 feet from the face of the building exterior. The plug material should consist of cementitious flowable fill or low permeability clay. The trench plug material should be placed to surround the utility line. If clay is used to construct the trench plug, the clay should be placed and compacted in accordance with the water content and compaction recommendations for engineered fill provided in this report.

Grading and Drainage

The site should be graded to provide effective drainage away from the building during and after construction, and these conditions should be maintained throughout the life of the structure. Accumulation of water adjacent to the structure could contribute to significant moisture increases in the subgrade soils and subsequent softening/settlement or

expansion/heave, which could result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks.

After building construction, paving, and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structure's maintenance program. Where paving or flatwork abuts the structure, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

Earthwork Construction Considerations

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proofrolling, placement and compaction of engineered fill, backfilling of excavations into completed subgrades, and just prior to construction of foundations, slabs, and pavements.

Where shale bedrock is encountered at the basement floor slab subgrade level, the shale must be protected from weathering and moisture fluctuations that could lead to swelling of the shale subgrade. Shale that is exposed to weathering and water will deteriorate rapidly, and construction traffic across the shale subgrade can cause further deterioration of the shale. Where exposed shale becomes saturated, disturbed, or weathered prior to placement of the slab, these materials should be removed and replaced with engineered fill.

Care should be taken to avoid disturbance of prepared pavement subgrades. Unstable subgrade conditions can develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. If unstable subgrade conditions develop, stabilization measures will need to be employed. Construction traffic over the completed subgrade should be avoided to the extent practical. If the subgrade becomes frozen, desiccated, saturated, or disturbed, the affected materials should be removed or these materials should be scarified, moisture conditioned, and compacted prior to floor slab construction.

Based on conditions encountered in the borings, significant seepage is generally not expected in excavations for this project (e.g., for basement excavation, footing construction, and utility installation). If seepage is encountered in excavations during construction, the contractor is responsible for designing, implementing, and maintaining appropriate dewatering methods to control seepage and facilitate construction. In our experience, dewatering of excavations in clay soils can typically be accomplished using sump pits and pumps. If seepage occurs where sandstone is encountered in excavations, a more extensive dewatering system may be required.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, state, and federal safety regulations. The contractor should be aware that slope height, slope inclination, and excavation depth should in no instance exceed those specified by these safety regulations. Flatter slopes than those dictated by these regulations may be required depending upon the soil conditions encountered and other external factors. These regulations are strictly enforced and if they are not followed, the owner, contractor, and/or earthwork and utility subcontractor could be liable and subject to substantial penalties. Under no circumstances should the information provided in this report be interpreted to mean that Terracon is responsible for construction site safety or the contractor's activities. Construction site safety is the sole responsibility of the contractor who shall also be solely responsible for the means, methods, and sequencing of the construction operations.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation, topsoil, and pavements), evaluation and remediation of existing fill materials, as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unanticipated conditions are observed, the Geotechnical Engineer should recommend mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

Footing Foundations

Based on the conditions encountered at the borings, the building can be supported on footing foundations that bear on suitable shale bedrock. Depending on the proposed basement floor slab elevation, deeper excavation may be required in some areas to expose suitable shale bedrock. Footings do not need to be constructed at lower elevations. Lean concrete can be used to backfill deepened footing excavations from the approved bearing materials up to the design bearing level as recommended in

Foundation Construction Considerations.

Shallow Foundation Design Parameters

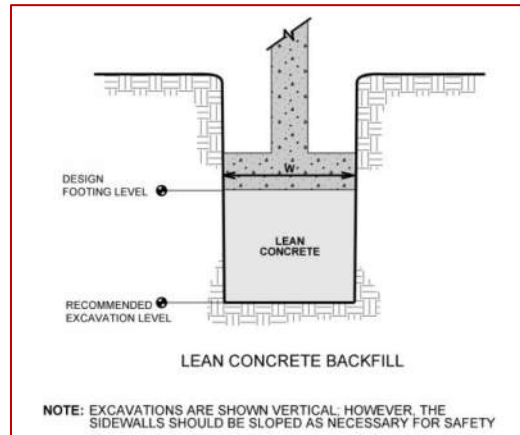
Item	Description
Bearing Material	Suitable shale bedrock
Maximum Net Allowable Bearing Pressure ^{1, 2, 3}	5,000 psf
Minimum Foundation Dimensions	Per IBC 1809.7
Minimum Embedment below Finished Grade ⁴	3 feet
Estimated Total Settlement from Structural Loads ²	Less than 1 inch
Estimated Differential Settlement ^{2, 5}	About 1/2 to 2/3 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation.
2. Values provided are for maximum loads noted in [Project Description](#). Additional geotechnical consultation will be necessary if higher loads are anticipated.
3. Unsuitable or shale should be overexcavated and replaced.
4. The recommended minimum embedment depth is necessary to minimize the effects of frost and/or seasonal water content variations. Since all footings are expected to bear at the basement level, this recommendation is not expected to impact this project.
5. Differential settlements are noted for equivalent-loaded foundations and bearing elevation as measured over a span of 50 feet.

Foundation Construction Considerations

The base of all foundation excavations should be free of water, soil, and loose material prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing material disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. If the materials at the bearing level become excessively dry, disturbed, saturated, or frozen, the affected material should be removed prior to placing concrete. If the excavations must remain open overnight or for an extended period of time, placement of a lean concrete mud-mat over the bearing materials should be considered.

The shale bearing materials at the base of each footing excavation should be evaluated by a representative of the Geotechnical Engineer. If unsuitable bearing materials are observed, the excavation should be extended deeper to suitable materials. The footings could bear directly on suitable shale materials at the lower level or on lean concrete backfill that extends to suitable shale as shown on the following figure.



Basement Floor Slab

Design parameters for floor slabs assume the requirements for **Earthwork** have been followed. Specific attention should be given to positive drainage away from the structure and positive drainage of the aggregate base beneath the floor slab. As noted previously, the shale exposed at subgrade level must be protected from saturation, disturbance, and weathering prior to construction of the slab.

Floor Slab Design Parameters

Item	Description
Floor Slab Support¹	Subgrade prepared as recommended in Earthwork
Granular Leveling Course Layer Thickness²	4 inches (minimum)
Estimated Modulus of Subgrade Reaction³	100 pounds per square inch per inch (psi/in) for point loads

1. Floor slabs should be structurally independent of building footings or walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation.
2. Well graded crushed stone (e.g., MoDOT Type 5) or open-graded crushed stone (e.g., ASTM C33, Size No. 57 aggregate) can be used as the leveling course.
3. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in **Earthwork**, and the floor slab support as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.

The use of a vapor retarder should be considered beneath concrete slabs covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, when the project includes humidity-controlled areas, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Joints should be placed in slabs at regular intervals as recommended by ACI to help control the locations of cracks. Joints or any cracks that develop in the floor slab should be sealed with a waterproof, non-extruding compressible compound.

The Geotechnical Engineer should observe the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that may have been disturbed by construction activities, and to areas where backfilled trenches are located.

Lateral Earth Pressures

Lateral Earth Pressure Design Parameters

Reinforced concrete walls with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction, methods and degree of compaction, and the strength of the materials being restrained. Two wall restraint conditions are shown in the diagram below. Active earth pressure is commonly used for design of free-standing cantilever retaining walls where wall movement is acceptable. The "at-rest" condition assumes no wall movement and is commonly used for design of basement walls, elevator pit walls, loading dock walls, or other walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety. The drained parameters do not provide for possible hydrostatic pressure on the walls.

Lateral Earth Pressure Design Parameters

Earth Pressure Condition ¹	Coefficient for Backfill Type ^{2,3}	Surcharge Pressure ⁴ p ₁ (psf)	Equivalent Fluid Unit Weight (pcf) ^{2,5}	
			Drained ⁵	Undrained ⁵
Active (K _a)	Granular - 0.3	(0.31)S	40	80
	Clay - 0.42	(0.42)S	50	85
At-Rest (K _o)	Granular - 0.47	(0.47)S	60	90
	Fine Grained - 0.58	(0.58)S	70	95

Lateral Earth Pressure Design Parameters

Earth Pressure Condition ¹	Coefficient for Backfill Type ^{2,3}	Surcharge Pressure ⁴ p ₁ (psf)	Equivalent Fluid Unit Weight (pcf) ^{2,5}	
			Drained ⁵	Undrained ⁵
Passive (Kp)	Granular - 3.3	---	420	290
	Clay - 2.4	---	290	200

1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure, wall must move horizontally to mobilize resistance.
2. Uniform, horizontal backfill, with a maximum unit weight of 120 pcf for clay soils and 130 pcf for granular soils
3. Granular material backfill phi = 32 degrees (minimum); Clay soil phi = 24 degrees (minimum)
4. Uniform surcharge, where S is surcharge pressure
5. Loading from heavy compaction equipment is not included.
6. To achieve "Drained" conditions, follow guidelines in **Subsurface Drainage for Below-Grade Walls** below. "Undrained" conditions are recommended when drainage behind walls is not incorporated into the design.

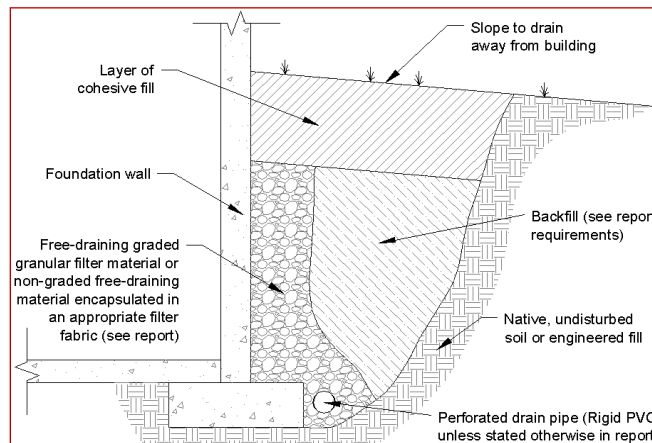
Backfill placed against structures should consist of granular soils or low plasticity cohesive soils. Shale should not be used as backfill on this project. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 degrees from vertical for the active and at-rest cases, and at an angle of 60 degrees from vertical for the passive case. To calculate the resistance to sliding, a value of 0.35 should be used as the ultimate coefficient of friction where the footing bears on shale or lean concrete.

The lateral earth pressure recommendations given in this section are applicable to the design of rigid retaining walls subject to slight rotation, such as cantilever or gravity type concrete walls. These recommendations are not applicable to the design of modular block - geogrid reinforced backfill walls (also termed MSE walls). Recommendations covering these types of wall systems are beyond the scope of services for this assignment. However, we would be pleased to develop a proposal for evaluation and design of such wall systems upon request.

Subsurface Drainage for Below-Grade Walls

Below-grade walls should be waterproofed, and water stops should be placed at construction joints. To reduce the potential for hydrostatic loading on the below grade walls and to reduce the potential for seepage into below grade areas, a perforated rigid plastic drain line installed behind the base of walls and extends below adjacent grade is recommended. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be

sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The drain line should be surrounded by clean, free-draining granular material having less than 5% passing the No. 200 sieve, such as No. 57 aggregate. The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 2 feet of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.



As an alternative to free-draining granular fill, a prefabricated drainage structure may be used. A prefabricated drainage structure is a plastic drainage core or mesh which is covered with filter fabric to prevent soil intrusion and is fastened to the wall prior to placing backfill.

Pavements

Pavement Subgrade Preparation

Pavement subgrades are expected to consist of on-site native clay soils or tested and approved existing fill composed of similar materials. The pavement subgrades should be proofrolled as recommended in **Earthwork**. If soft or otherwise unsuitable areas are observed, additional over-excavation and replacement will be needed.

Grading and paving are commonly performed by separate contractors and there is often a time lapse between the end of grading operations and the commencement of paving. Subgrades prepared early in the construction process may become disturbed by construction traffic. Non-uniform subgrades often result in poor pavement performance and local failures relatively soon after pavements are constructed. Depending on the paving equipment used by the contractor, measures may be required to improve subgrade strength to greater depths for support of heavily loaded concrete/asphalt trucks.

We recommend the moisture content and density of the subgrade be evaluated and the pavement subgrades be proofrolled (using a loaded tandem-axle dump truck with a minimum gross weight of 20 tons or similarly loaded rubber-tire equipment) within two days prior to commencement of actual paving operations. Areas not in compliance with the required ranges of moisture or density should be scarified, moisture conditioned, and compacted. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the materials with properly compacted fills. The subgrade should be in its finished form at the time of the final review.

Pavement Section Thicknesses

Pavement thickness depends upon many factors including but not limited to:

- applied wheel/axle loads and number of repetitions
- subgrade and pavement material characteristics
- climate conditions
- site and pavement drainage

Specific information regarding anticipated vehicle types, axle loads, and traffic volumes was not provided at the time of this report. The "Personal Vehicle Parking Lots/Drives" pavement section considers 4-tire, 2-axle personal vehicle traffic only (cars, vans, pickups, and SUVs). The "Fire Truck Drives" pavement section considers personal vehicle traffic, fire truck traffic, and a maximum of ten delivery trucks/trash collection trucks per week. Our recommendations for ACC pavement over aggregate base, and portland cement concrete (PCC) pavement sections are outlined in the following table.

Opinions of Minimum Pavement Thickness

Pavement Type	Personal Vehicle Parking Lots/Drives	Fire Truck Drives
ACC over aggregate base	2 inches ACC surface 2 inches ACC base 6 inches aggregate base (MoDOT Type 5 or similar)	Not recommended
PCC	5 inches PCC 4 inches aggregate base (MoDOT Type 5 or similar)	8 inches PCC 4 inches aggregate base (MoDOT Type 5 or similar)

1. For trash container pads, we recommend a PCC pavement section be used consisting of 7 inches (minimum) of PCC over 4 inches (minimum) aggregate base (MoDOT Type 5 or similar) on a compacted soil subgrade. The trash

container pad should be large enough to support the container and the tipping axle of the collection truck.

PCC pavements will perform better than ACC in areas where short radius turning and braking are expected (i.e., entrance/exit aprons) due to better resistance to rutting and shoving. In addition, PCC pavement will perform better in areas subject to heavy static loads.

Construction traffic on the pavements was not considered in developing our opinions of minimum pavement thickness. If the pavements will be subject to construction equipment/vehicles, the pavement sections should be revised to consider the additional loading.

Pavements and subgrades will be subject to freeze-thaw cycles and seasonal fluctuations in moisture content. Pavement thickness design methods are intended to provide adequate thickness of structural materials over a particular subgrade such that wheel loads are reduced to a level that the subgrade can support. The subgrade support parameters for pavement thickness design do not account for shrink/swell movements of a subgrade constructed of expansive clay soils. Therefore, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to shrink/swell related movement of the subgrade.

The pavement sections provided above consider that the subgrade soils will not experience significant increases in moisture content. Paved areas should be sloped to provide rapid drainage of surface water and to drain water away from the pavement edges. Pavements should be designed so water does not accumulate on or adjacent to the pavement, since this could saturate and soften the subgrade soils and subsequently accelerate pavement deterioration.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration.

We recommend that subdrains be installed to collect and remove water from the subbase and reduce the potential for accumulation of water resulting in softening of the soil subgrade. The spacing between drains should be 50 feet or less. The aggregate base should daylight to a reliable, frost-free outlet to allow for positive gravity drainage. Drainage of the pavement subgrade will be particularly important in areas where substantial quantities of water are anticipated, such as where vehicles will be washed.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses, and periodic maintenance and repairs should be anticipated. Preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Pavement care consists of both localized (e.g., crack sealing, joint sealing, and patching) and global maintenance (e.g., surface sealing). Additional engineering consultation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between boring locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Support of pavements above existing fill is discussed in this report. Even with the construction observation/testing recommended in this report, the owner must accept the risk that unsuitable materials within or buried by the fill will not be discovered. This may result in larger than normal settlement and damage to pavements supported above existing fill, requiring additional maintenance. This risk cannot be eliminated without removing the existing fill from below the pavement areas, but it can be reduced by thorough observation and testing as discussed herein.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is

Geotechnical Engineering Report

Lee's Summit Fire Station No. 1 | Lee's Summit, Missouri
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solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, cost estimating, excavation support, and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

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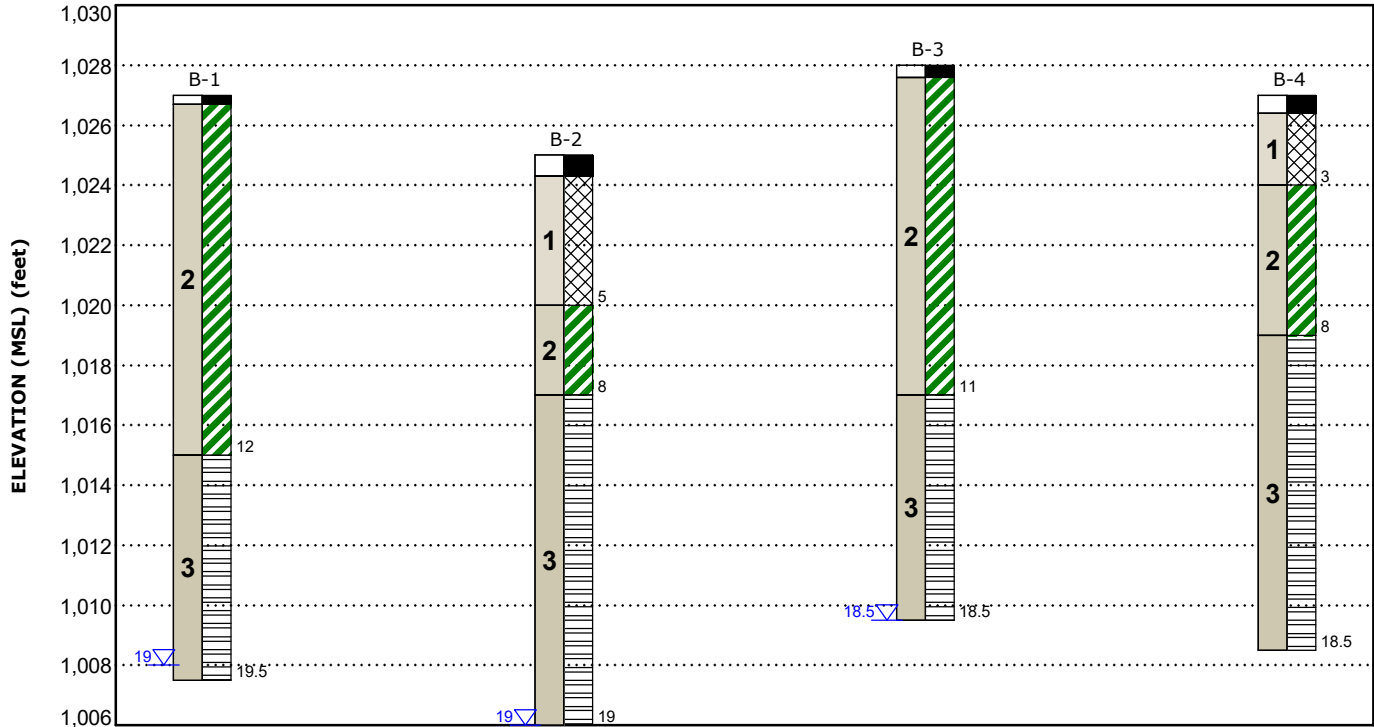


Figures

Contents:

GeoModel

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description	Legend	
1	Existing Fill	Fat clay with variable amounts of gravel	■ Asphalt	▨ Fat Clay
2	Residual Clay	Fat clay, medium stiff to very stiff	▨ Shale	▩ Fill
3	Bedrock	Highly to moderately weathered shale with sandstone seams		

▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
 Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
 Numbers adjacent to soil column indicate depth below ground surface.

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Attachments

Exploration and Testing Procedures

Field Exploration

Number of Borings	Approximate Boring Depth (feet)	Location
4	18½ to 19½	Perimeter of existing building

Boring Layout and Elevations: Terracon personnel provided the boring layout using handheld GPS equipment (estimated horizontal precision of about ±10 feet) and referencing existing site features. Approximate ground surface elevations were estimated using Google Earth.

Subsurface Exploration Procedures: We advanced the borings with a track-mounted ATV-mounted rotary drill rig using continuous flight augers. Samples were obtained from the borings using thin-walled tube and split-barrel sampling procedures. In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge was pushed hydraulically into the soil to obtain a relatively undisturbed sample. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. The borings were backfilled with auger cuttings after their completion. The upper few inches of borehole penetrations through pavements were surface patched with cold-mix asphalt.

We also observed the boreholes while drilling and at the completion of drilling for the presence of groundwater. The groundwater levels are shown on the attached boring logs.

Our exploration team prepared field boring logs to record the sampling depths, penetration distances, other sampling information, visual classifications of the materials observed during drilling, and our interpretation of the subsurface conditions between samples. The samples were placed in appropriate containers and taken to our laboratory for testing and classification. The final boring logs provided with this report include modifications based on the results of the laboratory tests and observations of the recovered samples.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following tests on selected samples:

- Moisture Content
- Dry Unit Weight
- Unconfined Compression
- Atterberg Limits

The laboratory testing program included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in general accordance with the Unified Soil Classification System.

Rock classification was conducted using locally accepted practices for engineering purposes; core samples and petrographic analysis may indicate other rock types. The rock classifications on the boring logs were determined using the attached Rock Classification Notes.

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Site Location and Exploration Plans

Contents:

Site Location Plan

Exploration Plan

Note: All attachments are one page unless noted above.

Site Location



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration and Laboratory Results

Contents:

Boring Logs (B-1 through B-4)

Atterberg Limits

Unconfined Compressive Strength (4 pages)

Note: All attachments are one page unless noted above.

Boring Log No. B-1

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.9137° Longitude: -94.3768° Depth (Ft.) _____ Elevation: 1027 (Ft.) +/- _____	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Strength Test			Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI
								Test Type	Compressive Strength (psf)	Strain (%)			
2		0.3 3" ASPHALT 1026.7 FAT CLAY (CH) , brown and gray, medium stiff to stiff	5	X	9	3-2-5 N=7				27.2			
			5		10			UC	2030	8	26.0	94	52-23-29
			10	X	7	3-4-4 N=8				26.7			
			10	X	16	3-3-5 N=8				24.7			
3		12.0 1015 SHALE , with sandstone seams, brown and gray, highly to moderately weathered	15	X	9	29-50/3"				20.1			
			15	X	10	30-50/4"				14.6			
		19.5 1007.5 Boring Terminated at 19.5 Feet		▽									

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).
 See [Supporting Information](#) for explanation of symbols and abbreviations.
 Elevation Reference: Elevation estimated using Google Earth

Water Level Observations
 ▽ 19 feet while drilling

Drill Rig
 CME 55

Hammer Type
 Automatic

Driller
 LN

Notes

Advancement Method
 Solid-stem auger

Logged by
 MR

Abandonment Method
 Boring backfilled with Auger Cuttings and/or Bentonite
 Surface Capped with Asphalt

Boring Started
 02-21-2024
Boring Completed
 02-21-2024

Boring Log No. B-2

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.9139° Longitude: -94.3765° Depth (Ft.) Elevation: 1025 (Ft.) +/-	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Strength Test			Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI
								Test Type	Compressive Strength (psf)	Strain (%)			
	8" ASPHALT		0.7	1024.3									
1		FILL - FAT CLAY , trace gravel, brown and dark gray			5	4-4-5 N=9				17.6			
					20			UC	1691	5.8	30.7	90	
2		FAT CLAY (CH) , brown and gray, medium stiff to stiff		5.0	1020								
					9	2-2-3 N=5				28.3			
3		SHALE , with sandstone seams, gray and brown, highly to moderately weathered		8.0	1017								
					12	3-2-17 N=19				23.8			
					7	45-50/2"				17.1			
					3	50/3"				14.0			
		Boring Terminated at 19 Feet		19.0	1006								

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).
 See [Supporting Information](#) for explanation of symbols and abbreviations.
 Elevation Reference: Elevation estimated using Google Earth

Water Level Observations
 19 feet while drilling

Drill Rig
 CME 55

Hammer Type
 Automatic

Driller
 LN

Notes

Advancement Method
 Solid-stem auger

Logged by
 MR

Abandonment Method
 Boring backfilled with Auger Cuttings and/or Bentonite
 Surface Capped with Asphalt

Boring Started
 02-21-2024
Boring Completed
 02-21-2024

Boring Log No. B-3

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.9134° Longitude: -94.3766°	Depth (Ft.)	Elevation: 1028 (Ft.) +/-	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Strength Test			Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI
									Test Type	Compressive Strength (psf)	Strain (%)			
		0.4 4" ASPHALT		1027.6										
2		FAT CLAY (CH) , brown and gray, medium stiff to stiff	9									27.0		
			8			UC	3862	14.8	23.9	101				
			16		3-3-4 N=7				24.4					
			16		3-3-4 N=7			24.9						
3		SHALE , with sandstone seams, brown and gray, highly to moderately weathered	3		50/3"					17.0				
			2		50/2"			18.6						
		Boring Terminated at 18.5 Feet		1009.5	▽									

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).
 See [Supporting Information](#) for explanation of symbols and abbreviations.
 Elevation Reference: Elevation estimated using Google Earth

Water Level Observations
 ▽ 18.5 feet while drilling

Drill Rig
 CME 55

Hammer Type
 Automatic

Driller
 LN

Notes

Advancement Method
 Solid-stem auger

Logged by
 MR

Abandonment Method
 Boring backfilled with Auger Cuttings and/or Bentonite
 Surface Capped with Asphalt

Boring Started
 02-21-2024
Boring Completed
 02-21-2024

Boring Log No. B-4

Model Layer	Graphic Log	Location: See Exploration Plan Latitude: 38.9135° Longitude: -94.3763°	Depth (Ft.)	Elevation: 1027 (Ft.) +/-	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Strength Test			Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits LL-PL-PI
									Test Type	Compressive Strength (psf)	Strain (%)			
		7" ASPHALT	0.6	1026.4										
1		FILL - FAT CLAY , trace gravel, brown and dark gray	3.0	1024			11	3-2-5 N=7				25.0		
2		FAT CLAY (CH) , brown and gray, stiff to very stiff	8.0	1019			13		UC	4699	15	18.5	106	66-22-44
		SHALE , with sandstone seams, brown and gray, highly to moderately weathered	18.5	1008.5			9	7-11-14 N=25				20.7		
							14	41-50/4"				17.9		
							2	50/2"				16.2		
		Boring Terminated at 18.5 Feet												

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).
 See [Supporting Information](#) for explanation of symbols and abbreviations.
 Elevation Reference: Elevation estimated using Google Earth

Water Level Observations
 Groundwater not encountered

Drill Rig
 CME 55

Hammer Type
 Automatic

Driller
 LN

Notes

Advancement Method
 Solid-stem auger

Logged by
 MR

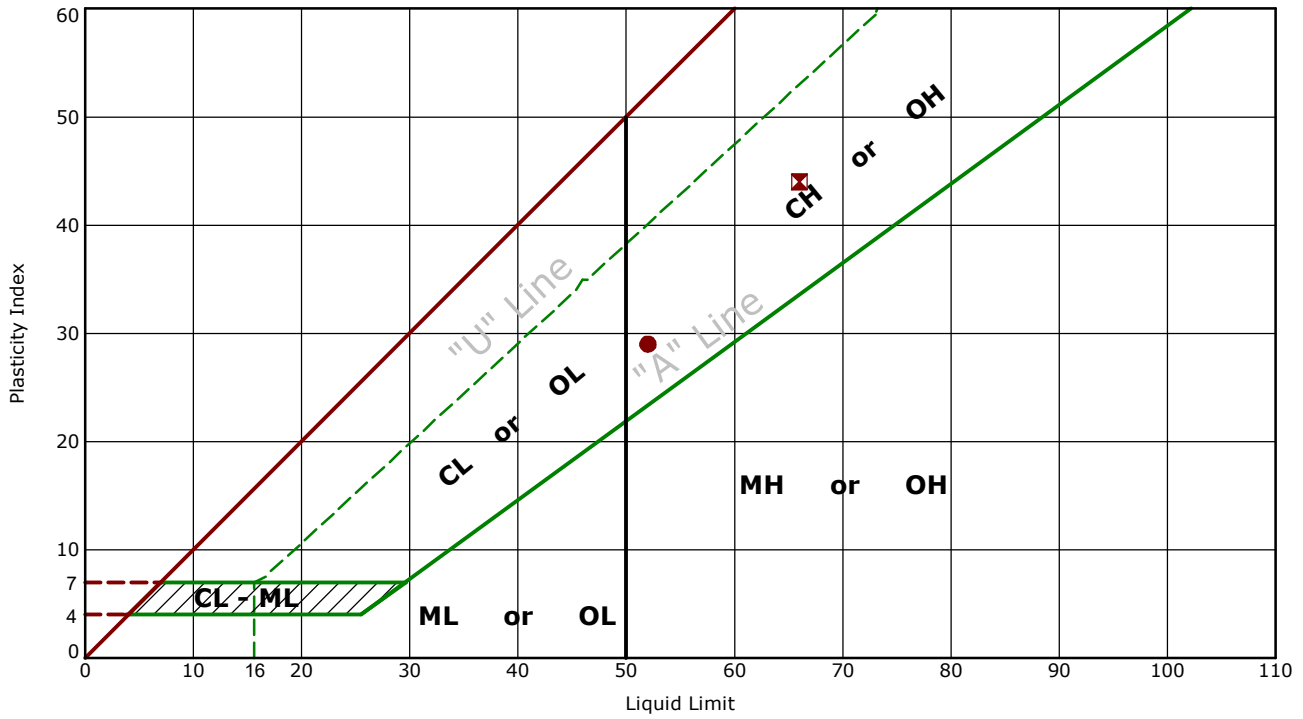
Boring Started
 02-21-2024

Boring Completed
 02-21-2024

Abandonment Method
 Boring backfilled with Auger Cuttings and/or Bentonite
 Surface Capped with Asphalt

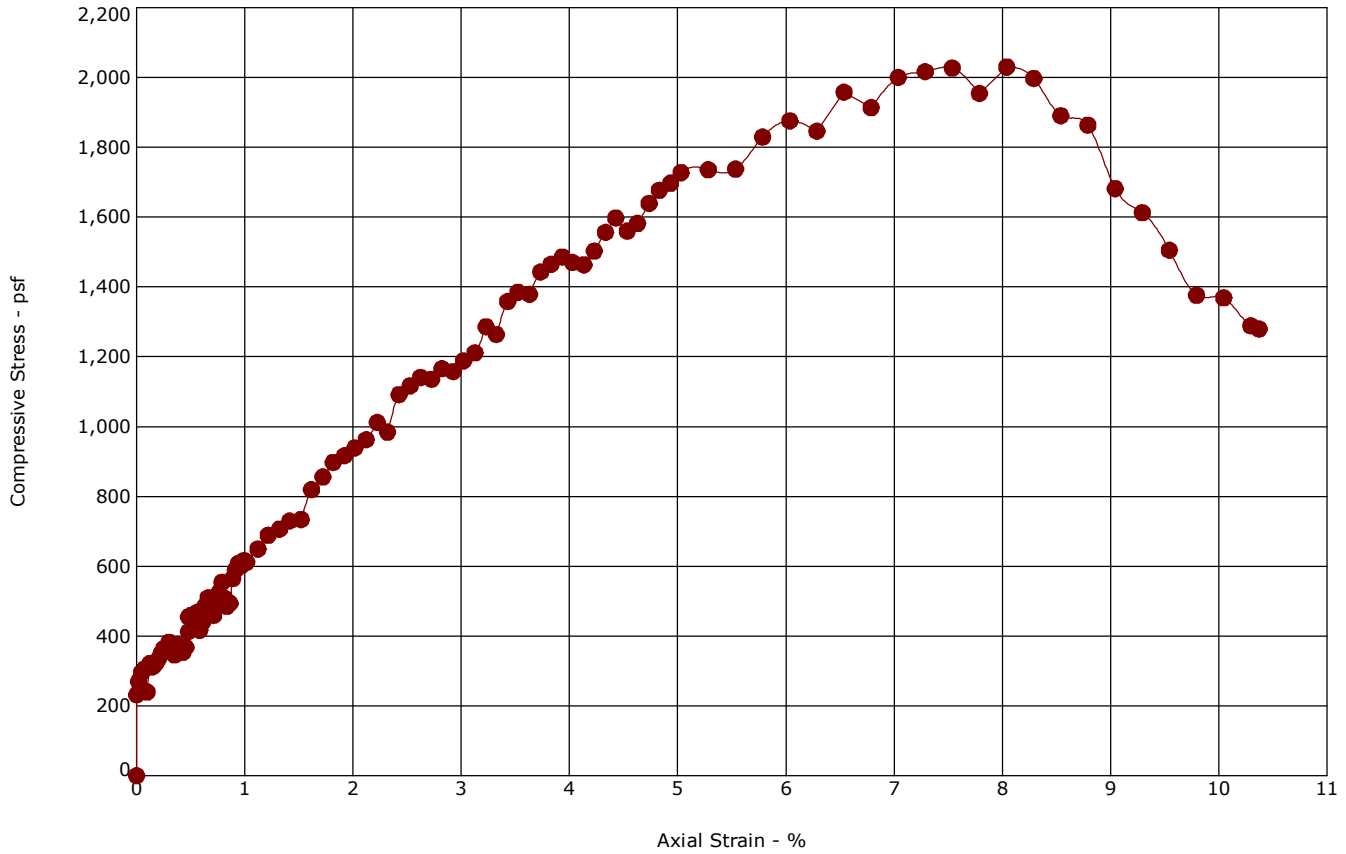
Atterberg Limit Results

ASTM D4318



	Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B-1	3 - 5	52	23	29			
☒	B-4	3 - 5	66	22	44			

Unconfined Compression Test ASTM D2166

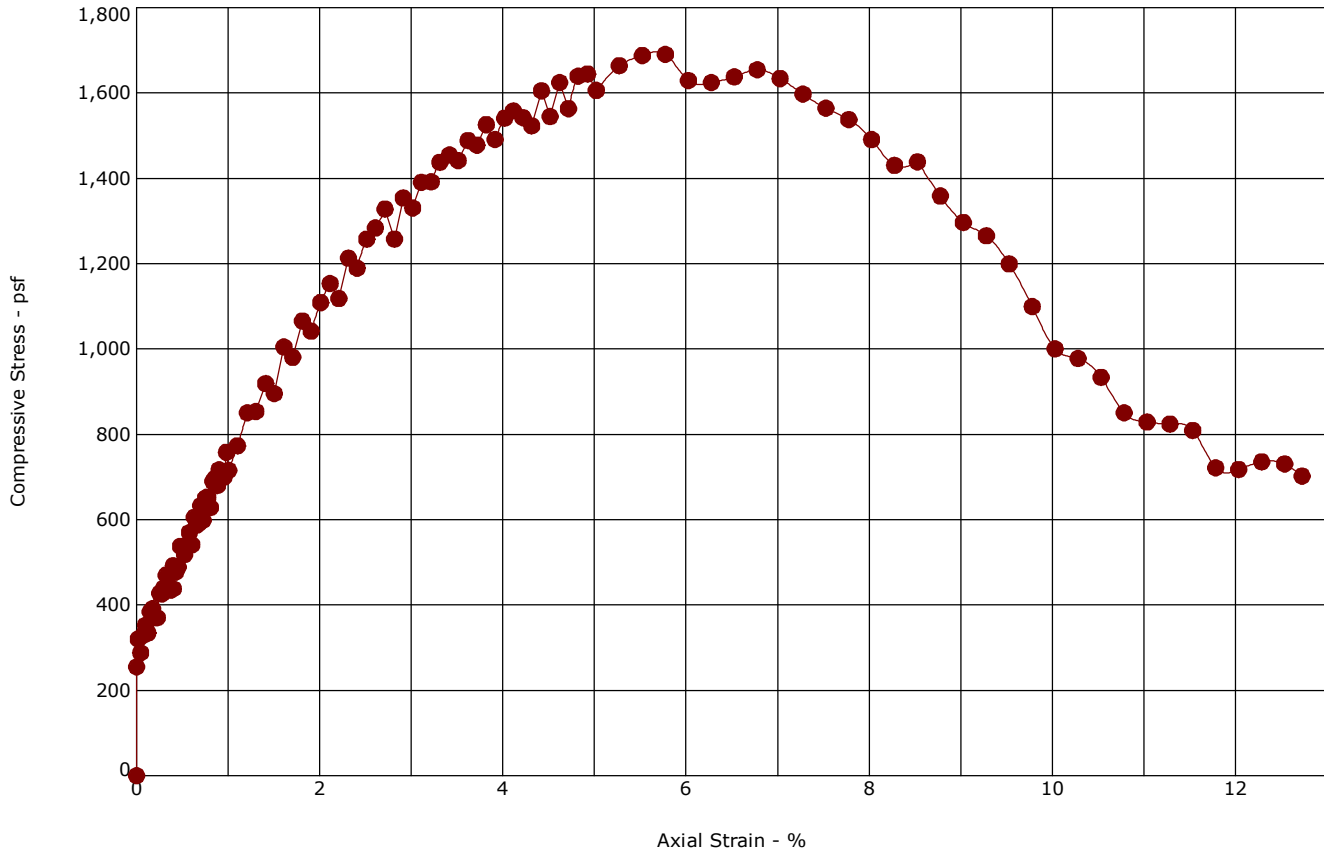


Boring ID	Depth (Ft)	Sample type	LL	PL	PI	Fines (%)	Description
B-1	3 - 5	Shelby Tube	52	23	29		

Specimen Failure Mode	Specimen Test Data
	Moisture Content (%): 26.0
	Dry Density (pcf): 94
	Diameter (in.): 2.72
	Height (in.): 5.81
	Height / Diameter Ratio: 2.13
	Calculated Saturation (%):
	Calculated Void Ratio:
	Assumed Specific Gravity:
	Failure Strain (%): 8.04
	Unconfined Compressive Strength (psf): 2030
	Undrained Shear Strength (psf): 1015
	Strain Rate (in/min): 0.0581
	Remarks:



Unconfined Compression Test ASTM D2166

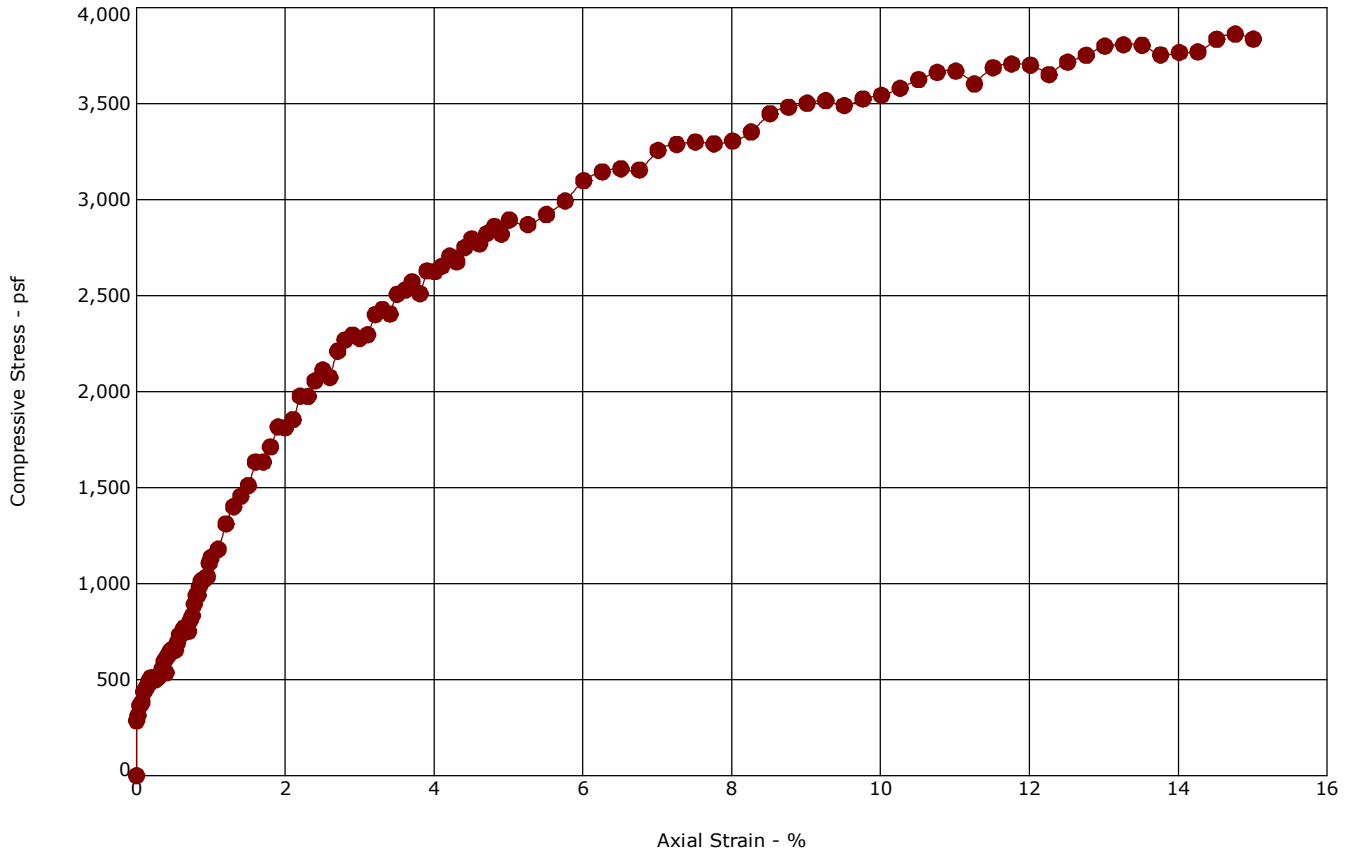


Boring ID	Depth (Ft)	Sample type	LL	PL	PI	Fines (%)	Description
B-2	3 - 5	Shelby Tube					

Specimen Failure Mode	Specimen Test Data
	Moisture Content (%): 30.7
	Dry Density (pcf): 90
	Diameter (in.): 2.85
	Height (in.): 5.69
	Height / Diameter Ratio: 1.99
	Calculated Saturation (%):
	Calculated Void Ratio:
	Assumed Specific Gravity:
	Failure Strain (%): 5.77
	Unconfined Compressive Strength (psf): 1691
	Undrained Shear Strength (psf): 845
	Strain Rate (in/min): 0.0569
	Remarks:



Unconfined Compression Test ASTM D2166

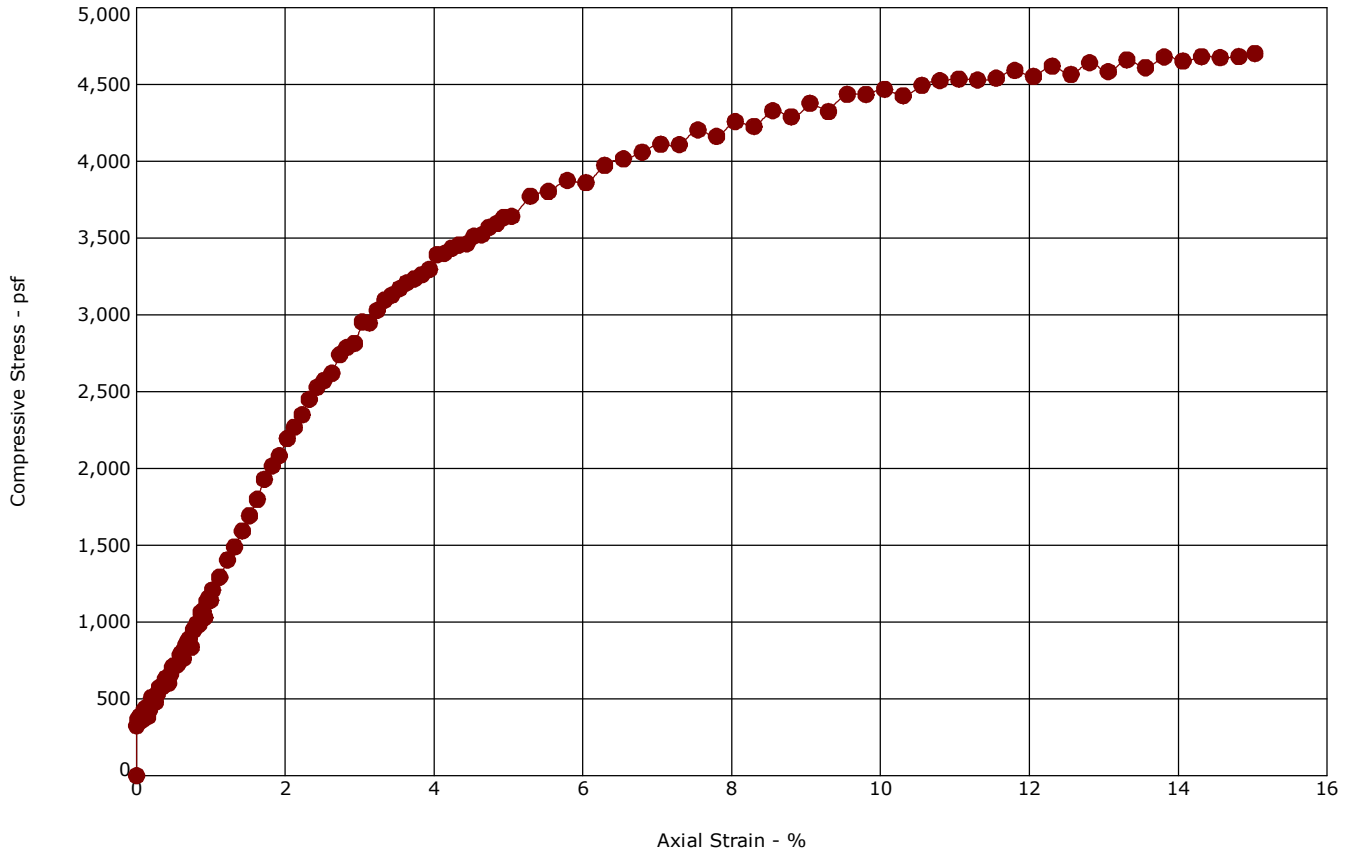


Boring ID	Depth (Ft)	Sample type	LL	PL	PI	Fines (%)	Description
B-3	3 - 5	Shelby Tube					

Specimen Failure Mode	Specimen Test Data
	Moisture Content (%): 23.9
	Dry Density (pcf): 101
	Diameter (in.): 2.75
	Height (in.): 5.78
	Height / Diameter Ratio: 2.10
	Calculated Saturation (%):
	Calculated Void Ratio:
	Assumed Specific Gravity:
	Failure Strain (%): 14.77
	Unconfined Compressive Strength (psf): 3862
	Undrained Shear Strength (psf): 1931
	Strain Rate (in/min): 0.0577
	Remarks:



Unconfined Compression Test ASTM D2166



Boring ID	Depth (Ft)	Sample type	LL	PL	PI	Fines (%)	Description
B-4	3 - 5	Shelby Tube	66	22	44		

Specimen Failure Mode	Specimen Test Data
	Moisture Content (%): 18.5
	Dry Density (pcf): 106
	Diameter (in.): 2.61
	Height (in.): 4.70
	Height / Diameter Ratio: 1.80
	Calculated Saturation (%):
	Calculated Void Ratio:
	Assumed Specific Gravity:
	Failure Strain (%): 15.00
	Unconfined Compressive Strength (psf): 4699
	Undrained Shear Strength (psf): 2349
	Strain Rate (in/min): 0.0471
	Remarks:









Supporting Information

Contents:

General Notes
Unified Soil Classification System
Rock Classification Notes

Note: All attachments are one page unless noted above.

General Notes

Sampling	Water Level	Field Tests
 Shelby Tube  Split Spoon	 Water Initially Encountered  Water Level After a Specified Period of Time  Water Level After a Specified Period of Time  Cave In Encountered Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-Ionization Detector (OVA) Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		Consistency of Fine-Grained Soils (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Relative Density	Standard Penetration or N-Value (Blows/Ft.)	Consistency	Unconfined Compressive Strength Qu (psf)	Standard Penetration or N-Value (Blows/Ft.)
Very Loose	0 - 3	Very Soft	less than 500	0 - 1
Loose	4 - 9	Soft	500 to 1,000	2 - 4
Medium Dense	10 - 29	Medium Stiff	1,000 to 2,000	4 - 8
Dense	30 - 50	Stiff	2,000 to 4,000	8 - 15
Very Dense	> 50	Very Stiff	4,000 to 8,000	15 - 30
		Hard	> 8,000	> 30

Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification	
				Group Symbol	Group Name ^B
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E	GW	Well-graded gravel ^F
		Gravels with Fines: More than 12% fines ^C	$Cu < 4$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E	GP	Poorly graded gravel ^F
			Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}
		Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	Fines classify as CL or CH	GC
	$Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E			SW	Well-graded sand ^I
	Sands with Fines: More than 12% fines ^D		$Cu < 6$ and/or $[Cc < 1$ or $Cc > 3.0]$ ^E	SP	Poorly graded sand ^I
			Fines classify as ML or MH	SM	Silty sand ^{G, H, I}
	Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	PI > 7 and plots above "A" line ^J	CL
PI < 4 or plots below "A" line ^J				ML	Silt ^{K, L, M}
Organic:			$\frac{LL \text{ oven dried}}{LL \text{ not dried}} < 0.75$	OL	Organic clay ^{K, L, M, N} Organic silt ^{K, L, M, O}
			Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above "A" line
PI plots below "A" line		MH			Elastic silt ^{K, L, M}
Organic:		$\frac{LL \text{ oven dried}}{LL \text{ not dried}} < 0.75$		OH	Organic clay ^{K, L, M, P} Organic silt ^{K, L, M, Q}
		Highly organic soils:		Primarily organic matter, dark in color, and organic odor	

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

^E $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

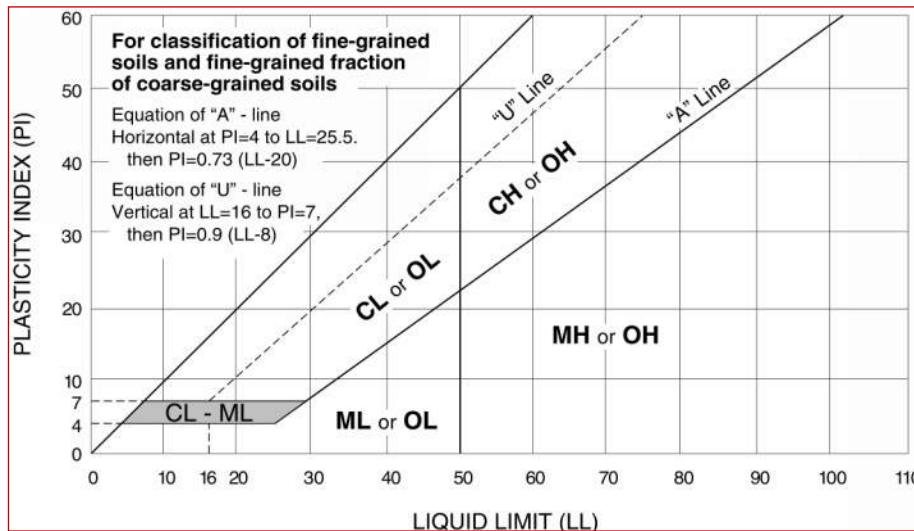
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N PI ≥ 4 and plots on or above "A" line.

^O PI < 4 or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.



Rock Classification Notes

WEATHERING	
Term	Description
Fresh	Mineral crystals appear bright; show no discoloration. Features show little or no staining on surfaces. Discoloration does not extend into intact rock.
Slightly weathered	Rock generally fresh except along fractures. Some fractures stained and discoloration may extend <0.5 inches into rock.
Moderately weathered	Significant portions of rock are dull and discolored. Rock may be significantly weaker than in fresh state near fractures. Soil zones of limited extent may occur along some fractures.
Highly weathered	Rock dull and discolored throughout. Majority of rock mass is significantly weaker and has decomposed and/or disintegrated; isolated zones of stronger rock and/or soil may occur throughout.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The rock mass or fabric is still evident and largely intact. Isolated zones of stronger rock may occur locally.

STRENGTH OR HARDNESS		
Description	Field Identification	Uniaxial Compressive Strength, psi
Extremely strong	Can only be chipped with geological hammer. Rock rings on hammer blows. Cannot be scratched with a sharp pick. Hand specimens require several hard hammer blows to break.	>36,000
Very strong	Several blows of a geological hammer to fracture. Cannot be scratched with a 20d common steel nail. Can be scratched with a geologist's pick only with difficulty.	15,000-36,000
Strong	More than one blow of a geological hammer needed to fracture. Can be scratched with a 20d nail or geologist's pick. Gouges or grooves to ¼ inch deep can be excavated by a hard blow of a geologist's pick. Hand specimens can be detached by a moderate blow.	7,500-15,000
Medium strong	One blow of geological hammer needed to fracture. Can be distinctly scratched with 20d nail. Can be grooved or gouged 1/16 in. deep by firm pressure with a geologist's pick point. Can be fractured with single firm blow of geological hammer. Can be excavated in small chips (about 1-in. maximum size) by hard blows of the point of a geologist's pick;	3,500-7,500
Weak	Shallow indent by firm blow with geological hammer point. Can be gouged or grooved readily with geologist's pick point. Can be excavated in pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.	700-3,500
Very weak	Crumbles under firm blow with geological hammer point. Can be excavated readily with the point of a geologist's pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.	150-700

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		Bedding Spacing (May Include Foliation or Banding)	
Description	Spacing	Description	Spacing
Intensely fractured	< 2.5 inches	Laminated	< ½-inch
Highly fractured	2.5 – 8 inches	Very thin	½ – 2 inches
Moderately fractured	8 inches to 2 feet	Thin	2 inches – 1 foot
Slightly fractured	2 to 6.5 feet	Medium	1 – 3 feet
Very slightly fractured	> 6.5 feet	Thick	3 – 10 feet
		Massive	> 10 feet

ROCK QUALITY DESIGNATION (RQD) ¹	
Description	RQD Value (%)
Very Poor	0 - 25
Poor	25 - 50
Fair	50 - 75
Good	75 - 90
Excellent	90 - 100

1. The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

BOUNDARY AND TOPOGRAPHIC SURVEY

LEE'S SUMMIT FIRE STATION

LEGAL DESCRIPTION PER TITLE COMMITMENT

The South half of Lot 7, Block 17, WILLIAM B. HOWARD'S FIRST ADDITION TO STROTHER, ALSO CALLED HOWARD'S FIRST ADDITION TO LEE'S SUMMIT, a subdivision in Lee's Summit, Jackson County, Missouri, according to the recorded plat thereof. AND Lots 8 and 9, Block 17, WILLIAM B. HOWARD'S FIRST ADDITION TO STROTHER, ALSO CALLED HOWARD'S FIRST ADDITION TO LEE'S SUMMIT, a subdivision in Lee's Summit, Jackson County, Missouri, according to the recorded plat thereof.

TITLE COMMITMENT NOTES

- Terms and provisions of Downtown Center Urban Renewal Plan MO. R-47 as set forth in instrument recorded 03/14/1968 as Document No. I-09578 in Book I-29 at Page 1361. [THE SURVEYED PREMISES IS SUBJECT TO THE TERMS AND PROVISIONS AS SET FORTH IN SAID DOCUMENT.]
- Terms and provisions of Agreement as set forth in instrument recorded 08/27/1973 as Document No. I-162292 in Book I-464 at Page 328. [THE SURVEYED PREMISES IS SUBJECT TO THE TERMS AND PROVISIONS AS SET FORTH IN SAID DOCUMENT.]
- Terms and provisions of Ordinance No. 2349 Vacating a North-South alley as set forth in instrument recorded 08/02/1982 as Document No. I-493010 in Book I-1156 at Page 591. [AN ORDINANCE TO VACATE THE ALLEY, RETAINING THE 20' WIDE UTILITY EASEMENT.]
- Terms and provisions of Memorandum of Real Property and Monopole Site Lease as set forth in instrument recorded 12/04/1996 as Document No. I-0075652 in Book I-2932 at Page 2224, as amended by the instrument recorded 02/03/2016 as Document No. 2016E0009764. [AS SHOWN HEREON.]
- Tenancy rights, if any, either month to month or by virtue of written leases, of parties now in possession of any part of the premises described herein. [NOT A SURVEY RELATED ITEM.]
- Effect, if any, of Pending Suit filed 11/14/2022 as Case No. 2216-CV26191 in the Circuit Court of Jackson County, Missouri, styled Jessica Huffman, Plaintiff vs. City of Lee's Summit, Missouri, Defendant. [NOT A SURVEY RELATED ITEM.]
- Effect, if any, of Pending Suit filed 02/20/2023 as Case No. 2316-CV04861 in the Circuit Court of Jackson County, Missouri, styled Eric Lee Gordon, Plaintiff vs. City of Lee's Summit, ET AL., Defendant. [NOT A SURVEY RELATED ITEM.]
- Effect, if any, of Pending Suit filed 01/17/2024 as Case No. 2416-CV01305 in the Circuit Court of Jackson County, Missouri, styled Army Eads, Plaintiff vs. City of Lee's Summit, Missouri, Defendant. [NOT A SURVEY RELATED ITEM.]

SURVEY NOTES

- AS OF FEBRUARY 5, 2024 WE HAVE MADE NO INVESTIGATION FOR, OR LOCATIONS OF, POSSIBLE USABLE SUBSURFACE AREAS OF PRIVATE LAND OR PUBLIC WAYS, INCLUDING, BUT NOT LIMITED TO, UTILITY VAULTS OF ANY NATURE, UTILITY OR PEDESTRIAN TUNNELS, UNDER WALK AREA WAYS, UNDER ALLEY AREA WAYS, FUEL STORAGE BINS OR TANKS, ELEVATOR PITS, AND ALL OR ANY COMBINATION OF THE ABOVE, EXCEPT AS SHOWN, NOTED AND DESCRIBED HEREON.
- INFORMATION AS SHOWN FOR UNDERGROUND UTILITIES HAS BEEN COMPILED FROM THE RECORDS OF VARIOUS UTILITY COMPANIES CONCERNED, AND AS MARKED IN THE FIELD BY THE MISSOURI ONE CALL SYSTEM, 1 (800) 344-7483. WHEN PRECISE LOCATIONS OF UNDERGROUND UTILITIES ARE NEEDED PRIOR TO EXCAVATION OR CONNECTIONS, THE VARIOUS UTILITY COMPANIES CONCERNED ARE TO FURNISH A CREW TO POINT OUT THE LOCATIONS AT THE JOB SITE.
- INFORMATION SHOWN ON THIS SURVEY WAS TAKEN FROM COFFELT LAND TITLE, INC. TITLE NO. 24068513, EFFECTIVE DATE, JANUARY 25, 2024.
- BASIS OF BEARINGS: MISSOURI STATE PLANE, WEST ZONE.
- CLASS OF SURVEY: URBAN
- A 10 FOOT GAP EXISTS BETWEEN THE WEST LINE OF LEE'S SUMMIT'S CITY HALL, LOT 1 AND THE EAST LINE OF THE SURVEYED PREMISE. A 20 FOOT WIDE ALLEY WAS VACATED BY DOCUMENT NUMBER I493010, BK 1156, PG 591. RECORDED 8/2/1982. SAID DOCUMENT DOES NOT DESCRIBE HOW THE ALLEY WAS TO REVERT BACK TO ADJACENT OWNERS. SEE SCHEDULE B-II EXCEPTION NO. 7.



CP#	NORTHING	EASTING	ELEV.	DESCRIPTION
100	1000416.87	2824242.64	1022.28	/ WSW TOP FLANGE BOLT YELLOW FIRE HYDRANT
101	1000174.21	2824108.09	1027.88	/ CTR MH LID DOUGLAS ST
200	1000235.07	2823954.56	1029.12	/ 100D POLE BARN NAIL
201	1000547.59	2824011.44	1026.24	/ 0.5IN IB W BLUE MEC C.P CAP
202	1000385.00	2824286.79	1019.02	/ CUT PLUS
203	1000168.28	2824073.90	1028.63	/ CUT PLUS

CAF=0.99989439 (CP#200)

I HEREBY CERTIFY THAT THIS SURVEY IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED BY ME AND BY THOSE UNDER MY DIRECT SUPERVISION AND TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF THIS SURVEY HAS BEEN PREPARED IN ACCORDANCE WITH THE CURRENT MISSOURI STANDARDS FOR PROPERTY BOUNDARY SURVEYS AS PUBLISHED BY THE MISSOURI BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, LAND SURVEYORS AND PROFESSIONAL LANDSCAPE ARCHITECTS. AND THAT IT MEETS OR EXCEEDS THE ACCURACY STANDARDS FOR AN "URBAN" TYPE PROPERTY BOUNDARY SURVEY AS OF THE DATE OF THIS SURVEY.



UTILITY WARNING
THE UTILITIES DEPICTED ON THIS DOCUMENT HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND/OR RECORDS OBTAINED. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES OR SUBSURFACE FEATURES SHOWN COMPRISE ALL SUCH ITEMS IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES OR SUBSURFACE FEATURES SHOWN ARE IN THE EXACT LOCATION INDICATED EXCEPT WHERE NOTED AS QUALITY LEVEL A.

LEE'S SUMMIT FIRE STATION ENGINEER: P. KULLBERG DRAWN BY: J. BURNETTE SURVEYOR: S. WHITAKER CHECKED BY: CRAFT/MADRID SHEET NO.: 01/01		REVISIONS: LEE'S SUMMIT, JACKSON CO. MISSOURI SEC. 6-747N-R31W 202301109-000 FEBRUARY 6, 2024	 STEVEN R. WHITAKER, MO, PLS NO. 2005019220 MCCLURE ENGINEERING COMPANY CORPORATE CERTIFICATE LICENSE NO. 201200935 S. WHITAKER@MCCLUREVISION.COM
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DRAWING PARTIAL: 1/23/2024 11:49 AM, PLOT DATE: 11-09-24, PLOT BY: BRAD PAUS

INFORMATIONAL TITLE REPORT

Issued by

Coffelt Land Title, Inc
401 S. Lexington Street, P.O. Box 208, Harrisonville, MO 64701
(816)380-3441

Title Officer:	Missy Miller	Title No.:	24068513
		Revision No.:	
		Customer File No.:	

1. Effective Date: January 25, 2024 at 8:00 a.m.

Property Address: 207 SE Douglas St, Lees Summit, MO 64063

2. **INFORMATIONAL REPORT**

This report is not a guarantee or warranty of title, nor is this a commitment to provide, nor does it provide title insurance. Liability hereunder is expressly limited to the consideration paid heretobefore.

3. The estate or interest in the land described or referred to in this report is:

Fee Simple.

4. Title to the Fee Simple estate or interest in the land is at the Effective Date vested in:

The City of Lee's Summit, Missouri, a municipal corporation

5. The Land is described as follows:

The South half of Lot 7, Block 17, WILLIAM B. HOWARD'S FIRST ADDITION TO STROTHER, ALSO CALLED HOWARD'S FIRST ADDITION TO LEE'S SUMMIT, a subdivision in Lee's Summit, Jackson County, Missouri, according to the recorded plat thereof.

AND

Lots 8 and 9, Block 17, WILLIAM B. HOWARD'S FIRST ADDITION TO STROTHER, ALSO CALLED HOWARD'S FIRST ADDITION TO LEE'S SUMMIT, a subdivision in Lee's Summit, Jackson County, Missouri, according to the recorded plat thereof.

INFORMATIONAL TITLE REPORT

Issued by

Coffelt Land Title, Inc
401 S. Lexington Street, P.O. Box 208, Harrisonville, MO 64701
(816)380-3441

ADDITIONAL MATTERS OF RECORD

1. This Report is based on a search of the public records by Coffelt Land Title, Inc. No certification is made herein as to the accuracy of the public records or the effective date thereof. This Report is not a title examination, title opinion, title insurance commitment, or title insurance policy. Coffelt Land Title, Inc. shall not be responsible or liable for any claims, demands, injuries, damage actions, or causes of action caused by inaccuracies contained herein arising from any acts of negligence by its servants, agents or employees and does not include errors, omissions or negligent acts committed by the party to whom such report is given.
2.
 - a. Rights or claims of parties in possession not shown by the public records.
 - b. Easements or claims of easements, not shown by the public records.
 - c. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land.
 - d. Any lien or right to a lien, for services, labor, or material heretofore or hereafter furnished, imposed by law and not shown by the public records.
 - e. Taxes or special assessments which are not shown as existing liens by the public records.
3. Taxes for 2024 and subsequent years.
4. Special Assessments, if any, due or pending to the City of Lee's Summit.
5. Terms and provisions of Downtown Center Urban Renewal Plan MO. R-47 as set forth in instrument recorded 03/14/1968 as Document No. I-09578 in Book I-29 at Page 1361.
6. Terms and provisions of Agreement as set forth in instrument recorded 08/27/1973 as Document No. I-162292 in Book I-464 at Page 328.
7. Terms and provisions of Ordinance No. 2349 Vacating a North-South alley as set forth in instrument recorded 08/02/1982 as Document No. I-493010 in Book I-1156 at Page 591.
8. Terms and provisions of Memorandum of Real Property and Monopole Site Lease as set forth in instrument recorded 12/04/1996 as Document No. I-0075652 in Book I-2932 at Page 2224, as amended by the instrument recorded 02/03/2016 as Document No. 2016E0009764.
9. Tenancy rights, if any, either month to month or by virtue of written leases, of parties now in possession of any part of the premises described herein.
10. Effect, if any, of Pending Suit filed 11/14/2022 as Case No. 2216-CV26191 in the Circuit Court of Jackson County, Missouri, styled Jessica Huffman, Plaintiff vs. City of Lee's Summit, Missouri, Defendant.

11. Effect, if any, of Pending Suit filed 02/20/2023 as Case No. 2316-CV04861 in the Circuit Court of Jackson County, Missouri, styled Eric Lee Gordon, Plaintiff vs. City of Lee's Summit, ET AL, Defendant.
12. Effect, if any, of Pending Suit filed 01/17/2024 as Case No. 2416-CV01305 in the Circuit Court of Jackson County, Missouri, styled Anny Eads, Plaintiff vs. City of Lee's Summit, Missouri, Defendant.
13. This company finds no open Mortgages of record executed by the current owner of the Land.

For Informational Purposes Only Regarding Taxes

Property Address: 207 SE Douglas Street, Lee's Summit, MO
Tax I.D. No.: 61-340-20-06-00-0-00-000
2023 St./Co./Ci. Real Estate Tax: \$ (Exempt)
2023 Assessed Value: \$454,784.00
2023 Mill Levy: .071682
2022 and prior are paid

For Informational Purposes Only Regarding 24 Month Chain of Title

Special Warranty Deed executed by the Land Clearance for Redevelopment Authority of Lee's Summit, Missouri to the City of Lee's Summit, a municipal corporation of the State of Missouri filed 08/24/1973 as Document No. I-162125 in Book I-463 at Page 1486. (Lot 7)

Missouri Warranty Deed executed by Robert L. Aldrich and Gladys W. Aldrich, husband and wife to The City of Lee's Summit, Missouri, a municipal corporation filed 07/27/1973 as Document No. I-159412 in Book I-456 at Page 1692. (Lots 8 & 9)

COFFELT LAND TITLE, INC

PRIVACY POLICY NOTICE

PURPOSE OF THIS NOTICE

Title V of the Gramm-Leach-Bliley Act (GLBA) generally prohibits any financial institution, directly or through its affiliates, from sharing nonpublic personal information about you with a nonaffiliated third party unless the institution provides you with a notice of its privacy policies and practices, such as the type of information that it collects about you and the categories of persons or entities to whom it may be disclosed. In compliance with the GLBA, we are providing you with this document, which notifies you of the privacy policies and practices of Coffelt Land Title, Inc.

We may collect nonpublic personal information about you from the following sources:

- Information we receive from you, such as on applications or other forms.
- Information about your transactions we secure from our files, or from our affiliates or others.
- Information we receive from a consumer reporting agency.
- Information that we receive from others involved in your transaction, such as the real estate agent or lender.

Unless it is specifically stated otherwise in an amended Privacy Policy Notice, no additional nonpublic personal information will be collected about you.

We may disclose any of the above information that we collect about our customers or former customers to our affiliates or to nonaffiliated third parties as permitted by law.

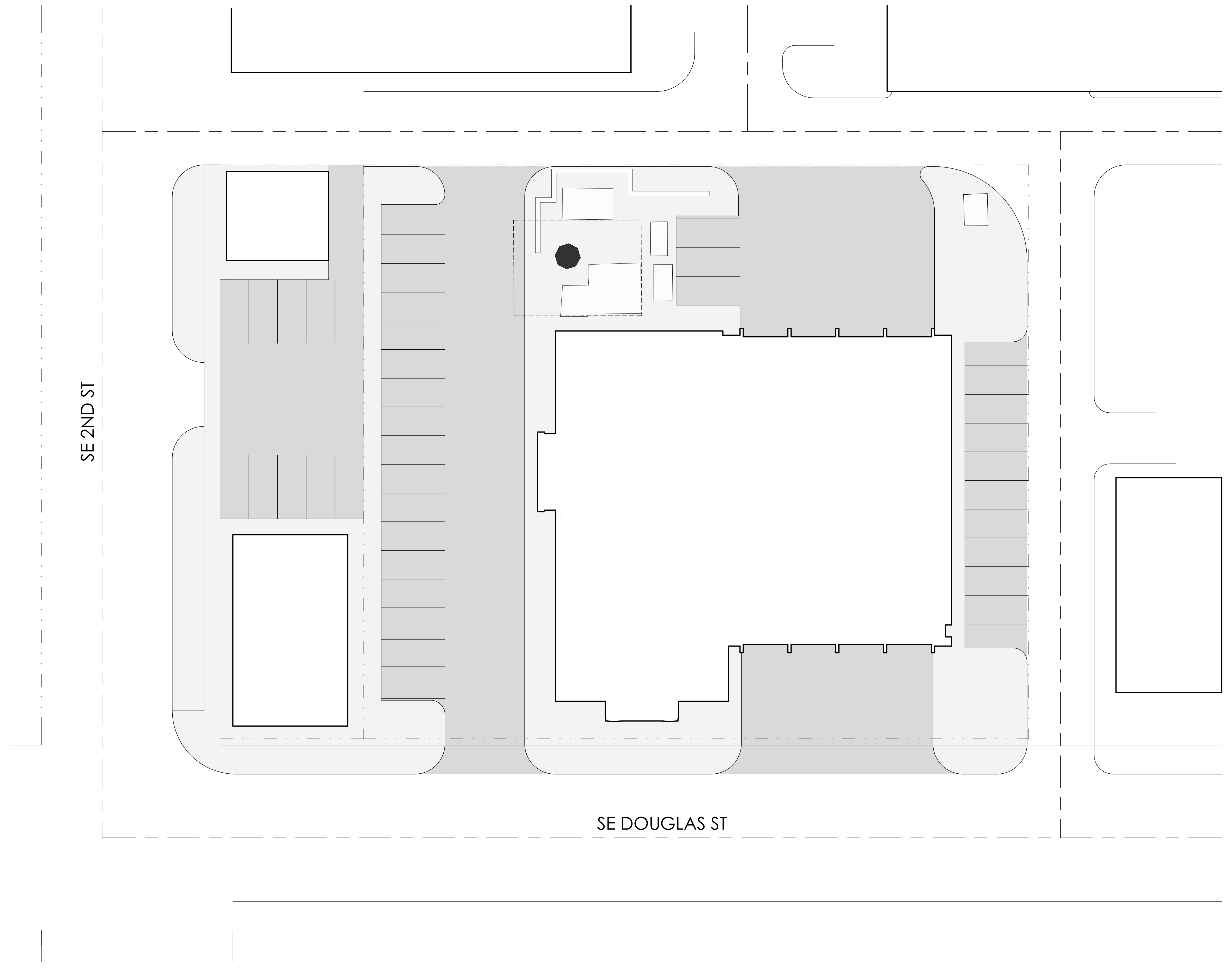
We also may disclose this information about our customers or former customers to the following types of nonaffiliated companies that perform marketing services on our behalf or with whom we have joint marketing agreements:

- Financial service providers such as companies engaged in banking, consumer finance, securities and insurance.
- Non-financial companies such as envelope stuffers and other fulfillment service providers.

WE DO NOT DISCLOSE ANY NONPUBLIC PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT SPECIFICALLY PERMITTED BY LAW.

We restrict access to nonpublic personal information about you to those employees who need to know that information in order to provide products or services to you. We maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

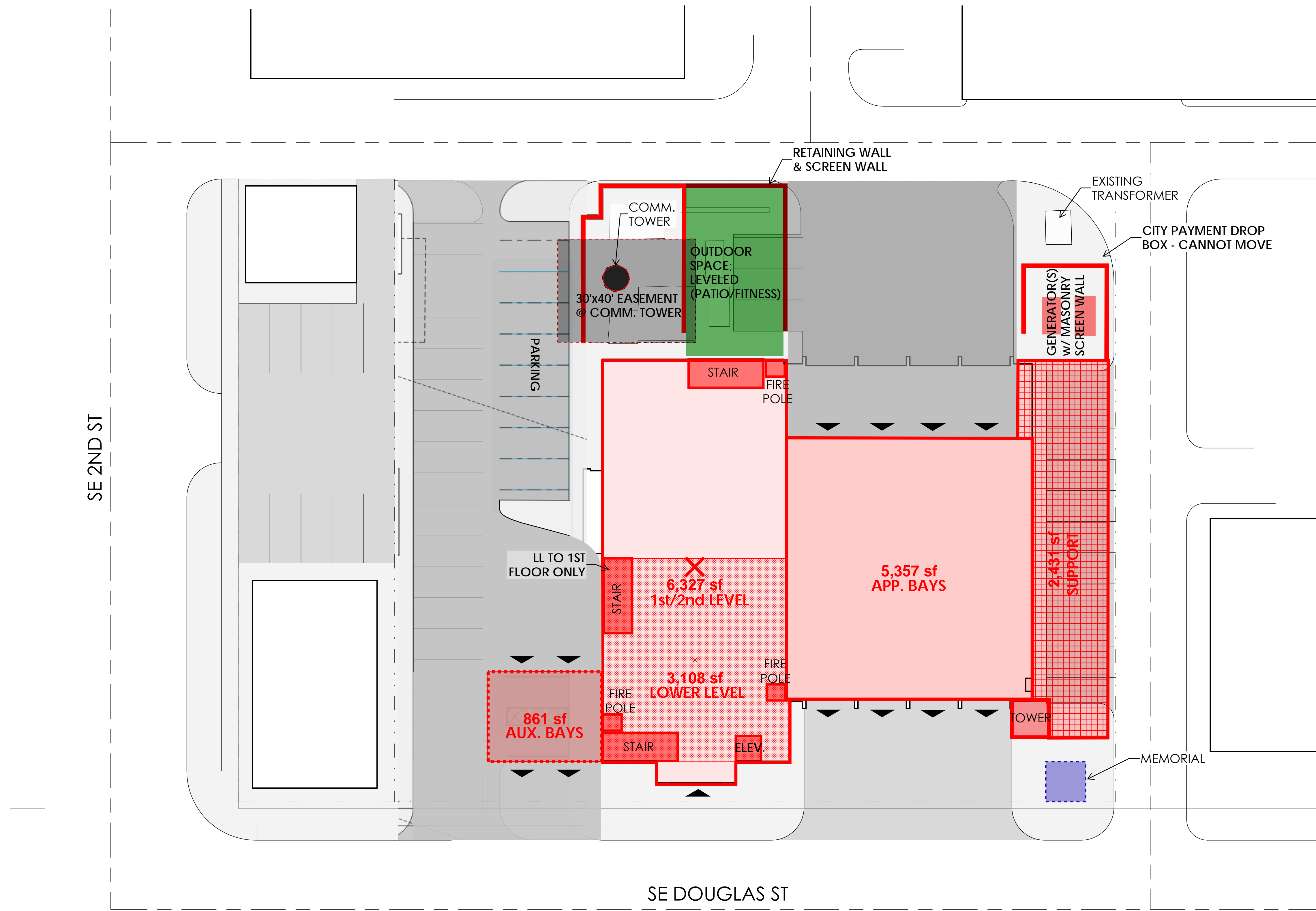
Appendix H – Conceptual Design



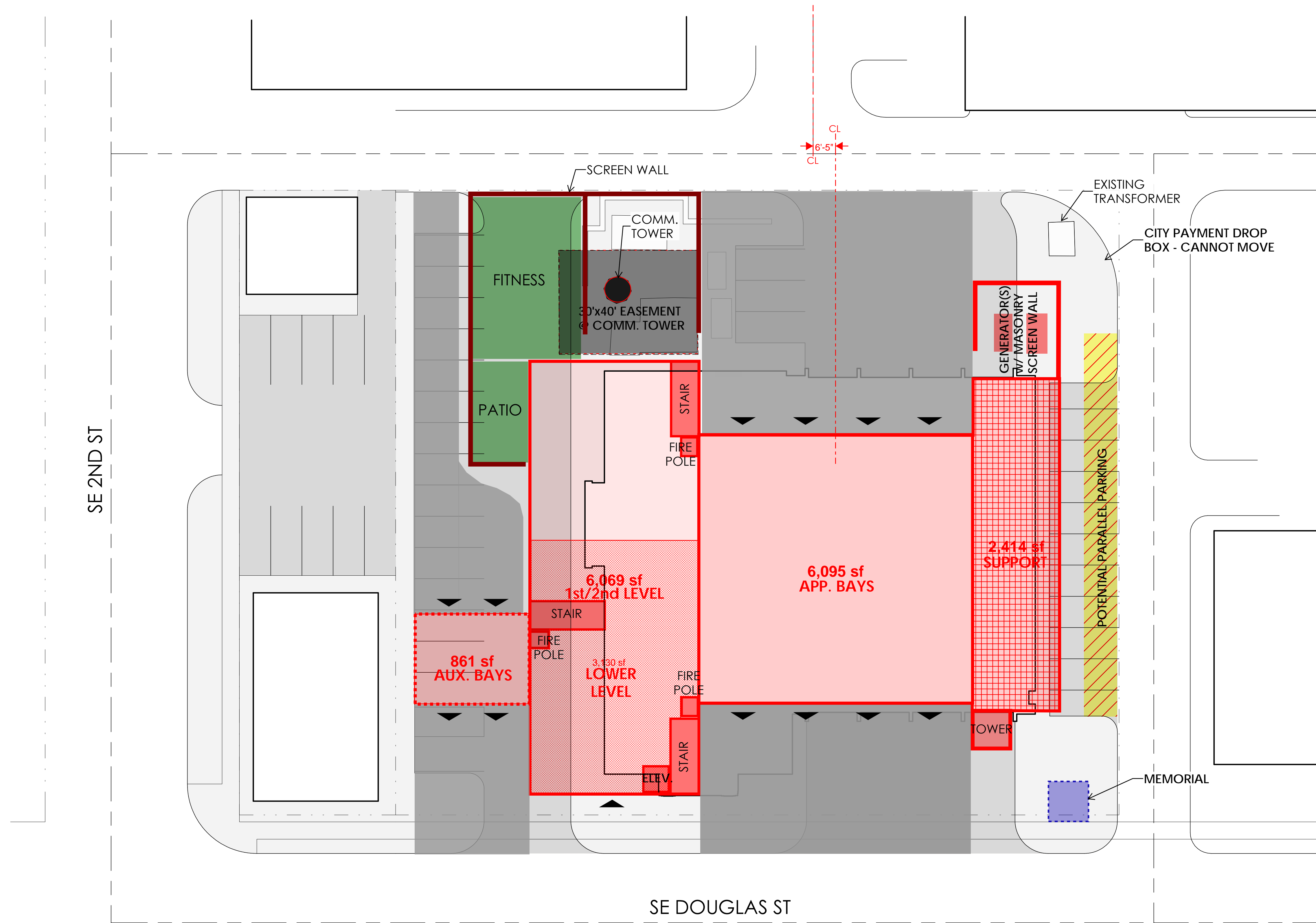
SE 2ND ST

SE DOUGLAS ST





REFER TO CURRENT SPACE PROGRAMMING DOCUMENT DATED 4/3/24 FOR LIST OF SPACES ON EACH LEVEL



REFER TO CURRENT SPACE PROGRAMMING DOCUMENT DATED 4/3/24 FOR LIST OF SPACES ON EACH LEVEL



REFER TO CURRENT SPACE PROGRAMMING DOCUMENT DATED 4/3/24 FOR LIST OF SPACES ON EACH LEVEL

Appendix I – Conceptual Budgets



4/26/24

Lee's Summit Fire Dept.

Concept Budgets



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Budget Summary





Description	Quantity	Cost	Unit Cost	Included In Totals							
				GenReq	PBI	Construction Contingency	Design Contingency	Owner Contingency	Escalation	Fee	
Option #1 Site	1 LS	\$ 1,388,096	\$ 49	\$ 111,048	\$ 64,824	\$ 67,318	\$ 89,757	\$ 33,659	\$ 47,571	\$ 27,829	
Option #1 Renovation**	25,170 SF	\$ 12,924,323	\$ 513	\$ 904,703	\$ 603,566	\$ 626,784	\$ 835,712	\$ 313,392	\$ 442,927	\$ 259,112	
Option #1 Addition	3,292 SF	\$ 5,401,835	\$ 1,641	\$ 432,147	\$ 252,266	\$ 238,807	\$ 796,024	\$ 119,404	\$ 168,757	\$ 98,723	
Construction Subtotal		\$ 19,714,255		\$ 1,447,897	\$ 920,656	\$ 932,909	\$ 1,721,493	\$ 466,454	\$ 659,256	\$ 385,664	

** Structural modifications are likely not fully accounted for in the above cost.

Description	Quantity	Cost	Unit Cost	Included In Totals							
				GenReq	PBI	Construction Contingency	Design Contingency	Owner Contingency	Escalation	Fee	
Option #2 Site	1 LS	\$ 1,719,838	\$ 70	\$ 171,984	\$ 80,316	\$ 83,406	\$ 111,208	\$ 41,703	\$ 58,940	\$ 34,480	
Option #2 Building	24,638 SF	\$ 16,579,293	\$ 673	\$ 1,120,964	\$ 774,253	\$ 817,248	\$ 817,248	\$ 408,624	\$ 577,522	\$ 337,850	
Construction Subtotal		\$ 18,299,132	\$ 743	\$ 1,292,948	\$ 854,569	\$ 900,654	\$ 928,456	\$ 450,327	\$ 636,462	\$ 372,330	

Description	Quantity	Cost	Unit Cost	Included In Totals							
				GenReq	PBI	Construction Contingency	Design Contingency	Owner Contingency	Escalation	Fee	
Option #3 Site	1 LS	\$ 2,026,617	\$ 79	\$ 171,984	\$ 94,643	\$ 98,284	\$ 131,045	\$ 49,142	\$ 69,454	\$ 40,630	
Option #3 Building	25,771 SF	\$ 17,630,333	\$ 684	\$ 1,120,964	\$ 823,337	\$ 869,057	\$ 869,057	\$ 434,529	\$ 614,134	\$ 359,268	
Construction Subtotal		\$ 19,656,950	\$ 763	\$ 1,292,948	\$ 917,980	\$ 967,341	\$ 1,000,102	\$ 483,670	\$ 683,588	\$ 399,899	

Budget Compare



Scope	Based on FS 4&5 \$/SF Escalated																			
	Fire Station 3		Fire Station 3 Escalated		Des Moines		Fire Stations 4 & 5		FS 1 Option 2 (existing site new building)		FS 1 Option 3 (larger site)		FS 1 Average \$/SF's from Des Moines and FS4/5		FS 1 NNCP Estimate Option 2		FS 1 NNCP Estimate Option 3			
	Bid Date: Jul-18	Total SF= 16,042	Escalation= 53%	Total SF= 21,412	Bid Date: 10/30/2022	Total SF= 22,892	Total SF= 24,638	Total SF= 25,771	Total SF= 25,205	Total SF= 24,638	Total SF= 25,771									
Cost	\$/SF	Cost	\$/SF	Cost	\$/SF	Cost	\$/SF	Cost	\$/SF	Cost	\$/SF	Cost	\$/SF	Cost	\$/SF	Cost	\$/SF	Cost	\$/SF	
Preconstruction						\$ 20,000	\$ 1	\$ 20,000	\$ 1	\$ 20,000	\$ 1	\$ 20,000	\$ 1	\$ 20,000	\$ 1	\$ 20,000	\$ 1	\$ 20,000	\$ 1	
General Conditions	\$ 145,514	\$ 9	\$ 223,218	\$ 14	\$ 1,915,020	\$ 89	\$ 552,808	\$ 24	\$ 599,000	\$ 25	\$ 599,000	\$ 23	\$ 599,000	\$ 24	\$ 599,000	\$ 24	\$ 599,000	\$ 24	\$ 599,000	\$ 23
General Requirements	\$ 24,525	\$ 2	\$ 37,621	\$ 2	\$ -	\$ -	\$ 780,883	\$ 34	\$ 780,000	\$ 32	\$ 780,000	\$ 30	\$ 780,000	\$ 31	\$ 726,000	\$ 29	\$ 726,000	\$ 29	\$ 726,000	\$ 28
Existing Conditions					\$ 49,553	\$ 2														
Final Clean							\$ 20,064	\$ 1	\$ 22,242	\$ 1	\$ 23,265	\$ 1	\$ 11,045	\$ 0	Included		Included			
Survey							\$ 6,000	\$ 0	\$ 6,651	\$ 0	\$ 6,957	\$ 0	\$ 3,303	\$ 0	Included		Included			
Adjacent Property Buy Out																				
Building Demo									\$ 75,000	\$ 3	\$ 78,449	\$ 3	\$ -	\$ -	\$ 75,000	\$ 3	\$ 75,000	\$ 3	\$ 75,000	\$ 3
Concrete	\$ 370,049	\$ 23	\$ 567,655	\$ 35	\$ 1,688,513	\$ 79	\$ 1,438,065	\$ 63	\$ 1,594,180	\$ 65	\$ 1,667,490	\$ 65	\$ 1,785,459	\$ 71	\$ 1,475,413	\$ 60	\$ 1,585,832	\$ 62	\$ 1,585,832	\$ 62
Masonry	\$ 321,678	\$ 20	\$ 493,454	\$ 31	\$ 279,608	\$ 13	\$ 1,336,046	\$ 58	\$ 1,481,086	\$ 60	\$ 1,549,195	\$ 60	\$ 900,071	\$ 36	\$ 1,547,986	\$ 63	\$ 1,738,252	\$ 67	\$ 1,738,252	\$ 67
Steel	\$ 257,676	\$ 16	\$ 395,275	\$ 25	\$ 547,857	\$ 26	\$ 936,600	\$ 41	\$ 1,038,277	\$ 42	\$ 1,086,023	\$ 42	\$ 838,053	\$ 33	\$ 1,281,644	\$ 52	\$ 1,336,002	\$ 52	\$ 1,336,002	\$ 52
General Trades	\$ 61,917	\$ 4	\$ 94,981	\$ 6	\$ 237,380	\$ 11	\$ 293,845	\$ 13	\$ 325,745	\$ 13	\$ 340,724	\$ 13	\$ 301,477	\$ 12	\$ 217,949	\$ 9	\$ 306,821	\$ 12	\$ 306,821	\$ 12
Joint Sealants	\$ 127,556	\$ 8	\$ 195,671	\$ 12	\$ 357,616	\$ 17	\$ 103,240	\$ 5	\$ 114,448	\$ 5	\$ 119,711	\$ 5	\$ 267,313	\$ 11	\$ 178,442	\$ 7	\$ 193,497	\$ 8	\$ 193,497	\$ 8
EIFS	\$ 107,500	\$ 7	\$ 164,905	\$ 10			\$ 113,100	\$ 5	\$ 125,378	\$ 5	\$ 131,144	\$ 5	\$ 62,263	\$ 2						
Roofing & Metal Panels	\$ 327,283	\$ 20	\$ 502,052	\$ 31			\$ 845,209	\$ 37	\$ 936,964	\$ 38	\$ 980,051	\$ 38	\$ 465,295	\$ 18	\$ 854,658	\$ 35	\$ 922,164	\$ 36	\$ 922,164	\$ 36
Doors/Frames/Hardware	\$ 95,805	\$ 6	\$ 146,965	\$ 9	\$ 645,546	\$ 30	\$ 266,500	\$ 12	\$ 295,431	\$ 12	\$ 309,017	\$ 12	\$ 526,653	\$ 21	\$ 251,172	\$ 10	\$ 170,168	\$ 7	\$ 170,168	\$ 7
Overhead Doors	\$ 52,360	\$ 3	\$ 80,320	\$ 5			\$ 476,040	\$ 21	\$ 527,719	\$ 21	\$ 551,986	\$ 21	\$ 262,064	\$ 10	\$ 600,000	\$ 24	\$ 800,000	\$ 31	\$ 800,000	\$ 31
Glazing	\$ 90,460	\$ 6	\$ 138,766	\$ 9			\$ 343,812	\$ 15	\$ 381,136	\$ 15	\$ 398,663	\$ 15	\$ 189,272	\$ 8	\$ 435,374	\$ 18	\$ 475,041	\$ 18	\$ 475,041	\$ 18
Drywall	\$ 374,500	\$ 23	\$ 574,483	\$ 36	\$ 562,461	\$ 26	\$ 1,294,896	\$ 57	\$ 1,435,469	\$ 58	\$ 1,501,480	\$ 58	\$ 1,043,894	\$ 41	\$ 427,953	\$ 17	\$ 456,159	\$ 18	\$ 456,159	\$ 18
Tile	\$ 71,220	\$ 4	\$ 109,251	\$ 7			\$ 81,400	\$ 4	\$ 90,237	\$ 4	\$ 94,386	\$ 4	\$ 44,811	\$ 2	\$ 74,313	\$ 3	\$ 74,966	\$ 3	\$ 74,966	\$ 3
Flooring	\$ 21,600	\$ 1	\$ 33,134	\$ 2			\$ 51,100	\$ 2	\$ 56,647	\$ 2	\$ 59,252	\$ 2	\$ 28,131	\$ 1	\$ 151,441	\$ 6	\$ 152,962	\$ 6	\$ 152,962	\$ 6
Polished Concrete	\$ 24,976	\$ 2	\$ 38,313	\$ 2			\$ 17,500	\$ 1	\$ 19,400	\$ 1	\$ 20,292	\$ 1	\$ 9,634	\$ 0	\$ 42,332	\$ 2	\$ 42,332	\$ 2	\$ 42,332	\$ 2
Paint	\$ 33,856	\$ 2	\$ 51,935	\$ 3			\$ 107,200	\$ 5	\$ 118,838	\$ 5	\$ 124,302	\$ 5	\$ 59,015	\$ 2	\$ 104,933	\$ 4	\$ 113,271	\$ 4	\$ 113,271	\$ 4
Casework	\$ 83,488	\$ 5	\$ 128,071	\$ 8			\$ 137,548	\$ 6	\$ 152,480	\$ 6	\$ 159,492	\$ 6	\$ 75,721	\$ 3	\$ 84,581	\$ 3	\$ 85,429	\$ 3	\$ 85,429	\$ 3
Specialties	\$ 104,159	\$ 6	\$ 159,780	\$ 10	\$ 146,816	\$ 7	\$ 365,654	\$ 16	\$ 405,349	\$ 16	\$ 423,989	\$ 16	\$ 287,706	\$ 11	\$ 62,100	\$ 3	\$ 92,185	\$ 4	\$ 92,185	\$ 4
Signage	\$ 27,992	\$ 2	\$ 42,940	\$ 3			\$ 64,300	\$ 3	\$ 71,280	\$ 3	\$ 74,558	\$ 3	\$ 35,398	\$ 1	\$ 5,000	\$ 0	\$ 11,577	\$ 0	\$ 11,577	\$ 0
Residential Appliance					\$ 38,553	\$ 2	\$ 83,360	\$ 4	\$ 92,410	\$ 4	\$ 96,659	\$ 4	\$ 68,581	\$ 3	\$ 102,567	\$ 4	\$ 102,567	\$ 4	\$ 102,567	\$ 4
Window Coverings	\$ 7,341	\$ 0	\$ 11,261	\$ 1			\$ 8,690	\$ 0	\$ 14,853	\$ 1	\$ 16,465	\$ 1	\$ 17,223	\$ 1	\$ 13,291	\$ 1	\$ 20,248	\$ 1	\$ 22,457	\$ 1
Elevator					\$ 10,000	\$ 0	\$ 99,740	\$ 4	\$ 110,568	\$ 4	\$ 115,652	\$ 4	\$ 60,793	\$ 2	\$ 273,929	\$ 11	\$ 273,929	\$ 11	\$ 273,929	\$ 11
Fire Suppression	\$ 49,120	\$ 3	\$ 75,350	\$ 5	\$ 117,157	\$ 5	\$ 141,960	\$ 6	\$ 157,371	\$ 6	\$ 164,608	\$ 6	\$ 147,104	\$ 6	\$ 135,037	\$ 5	\$ 142,815	\$ 6	\$ 142,815	\$ 6
Plumbing	\$ 267,600	\$ 17	\$ 410,498	\$ 26	\$ 460,424	\$ 22	\$ 862,036	\$ 38	\$ 955,618	\$ 39	\$ 999,563	\$ 39	\$ 745,546	\$ 30	\$ 526,835	\$ 21	\$ 545,598	\$ 21	\$ 545,598	\$ 21
HVAC	\$ 483,150	\$ 30	\$ 741,152	\$ 46	\$ 1,447,621	\$ 68	\$ 1,168,046	\$ 51	\$ 1,294,848	\$ 53	\$ 1,354,393	\$ 53	\$ 1,495,032	\$ 59	\$ 1,246,466	\$ 51	\$ 1,262,365	\$ 49	\$ 1,262,365	\$ 49
Electrical	\$ 654,423	\$ 41	\$ 1,003,885	\$ 63	\$ 1,530,424	\$ 71	\$ 1,871,441	\$ 82	\$ 2,074,603	\$ 84	\$ 2,170,006	\$ 84	\$ 1,930,992	\$ 77	\$ 1,586,722	\$ 64	\$ 1,716,937	\$ 67	\$ 1,716,937	\$ 67
Security																				
Earthwork	\$ 105,855	\$ 7	\$ 162,382	\$ 10	\$ 731,984	\$ 34	\$ 374,980	\$ 16	\$ 415,688	\$ 17	\$ 434,803	\$ 17	\$ 637,246	\$ 25	\$ 609,882	\$ 25	\$ 701,353	\$ 27	\$ 701,353	\$ 27
Asphalt Paving	\$ 202,644	\$ 13	\$ 310,856	\$ 19	\$ 702,870	\$ 33	\$ 14,500	\$ 1	\$ 16,074	\$ 1	\$ 16,813	\$ 1	\$ 421,664	\$ 17	\$ 44,798	\$ 2	\$ 44,798	\$ 2	\$ 44,798	\$ 2
Fence							\$ 33,073	\$ 1	\$ 36,663	\$ 1	\$ 38,349	\$ 1	\$ 18,207	\$ 1	\$ 8,374	\$ 0	\$ 8,374	\$ 0	\$ 8,374	\$ 0
Landscaping	\$ 96,712	\$ 6	\$ 148,356	\$ 9			\$ 136,496	\$ 6	\$ 151,314	\$ 6	\$ 158,272	\$ 6	\$ 75,142	\$ 3	\$ 59,818	\$ 2	\$ 69,244	\$ 3	\$ 69,244	\$ 3
Site Utilities	\$ 117,300	\$ 7	\$ 179,938	\$ 11	\$ 674,207	\$ 31	\$ 562,115	\$ 25	\$ 623,138	\$ 25	\$ 651,793	\$ 25	\$ 706,261	\$ 28	\$ 326,225	\$ 13	\$ 337,275	\$ 13	\$ 337,275	\$ 13
Sub Total	\$ 4,708,259	\$ 293	\$ 7,222,469	\$ 450	\$ 12,152,300	\$ 568	\$ 15,014,410	\$ 656	\$ 16,617,717	\$ 675	\$ 17,317,563	\$ 672	\$ 14,915,438	\$ 592	\$ 14,156,194	\$ 575	\$ 15,204,369	\$ 592	\$ 15,204,369	\$ 592
Builders Risk	\$ -		\$ -				\$ 58,788	\$ 3	\$ 883,225	\$ 36	\$ 920,422	\$ 36	\$ 793,065	\$ 31	\$ 854,569	\$ 35	\$ 917,980	\$ 35	\$ 917,980	\$ 35
SDI							\$ 169,571	\$ 7	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
P&P Bond	\$ 54,370	\$ 3	\$ 83,404	\$ 5			\$ 151,169	\$ 7	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
General Liability							\$ 159,568	\$ 7	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construction Contingency					\$ 348,500		\$ 472,993	\$ 21	\$ 700,038	\$ 28	\$ 729,519	\$ 28	\$ 628,340	\$ 25	\$ 900,654	\$ 37	\$ 967,341	\$ 37	\$ 967,341	\$ 37
Design Contingency					\$ 348,500		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 314,170	\$ 12	\$ 928,456	\$ 38	\$ 1,000,102	\$ 38	\$ 1,000,102	\$ 38
Owner Contingency							\$ 357,019	\$ 14	\$ 372,055	\$ 14	\$ 372,055	\$ 14	\$ 320,579	\$ 13	\$ 450,327	\$ 18	\$ 483,670	\$ 18	\$ 483,670	\$ 18
Escalation							\$ 364,109	\$ 16	\$ 350,019	\$ 14	\$ 364,760	\$ 14	\$ 320,453	\$ 13	\$ 636,462	\$ 26	\$ 683,588	\$ 26	\$ 683,588	\$ 26
Fee	\$ 220,704	\$ 14	\$ 338,560	\$ 21			\$ 405,986	\$ 18	\$ 361,744	\$ 15	\$ 376,979	\$ 15	\$ 324,817	\$ 13	\$ 372,330	\$ 15	\$ 399,899	\$ 15	\$ 399,899	\$ 15
Construction Total=	\$ 4,983,333	\$ 311	\$ 7,644,433	\$ 477	\$ 12,849,300	\$ 600	\$ 16,796,594	\$ 734	\$ 18,912,744	\$ 783	\$ 19,709,243	\$ 779	\$ 16,982,113	\$ 699	\$ 18,298,993	\$ 743	\$ 19,656,949	\$ 763	\$ 19,656,949	\$ 763

Option #1 Budget





Option 1 Site

Item	Description	Cost
1	General Requirements	111,048
2	Excavation and Grading	254,720
3	Asphalt Paving	44,798
4	Concrete Work	166,691
5	Site Structures	107,884
6	Fencing	0
7	Specialty Paving	0
8	Signage and Striping	23,467
9	Site Specialties	3,710
10	Site Utilities	204,566
11	Storm Drainage Systems	18,031
12	Fire Protection	61,656
13	Landscaping and Irrigation	27,395
14	Electrical	33,173
Subtotal		1,057,138
	Permits, Bonds and Insurance	4.67% 64,824
	Construction Contingency	6.00% 67,318
	Design Contingency	8.00% 89,757
	Owner Contingency	3.00% 33,659
	Escalation or Other	4.00% 47,571
	Fee	2.25% 27,829
Total		\$1,388,096

Lee's Summit Fire Station #1
 Lee's Summit, MO
 April 26, 2024
 Concept Estimates



Option 1 Renovation
 25,170 SF

Item	Description	Cost	Cost/SF
1	General Requirements	904,703	35.94
2	Demolition and Protection	322,176	12.80
3	Structure Modifications	1,764,248	70.09
4	Rough Carpentry	60,000	2.38
5	Finish Carpentry and Millwork	203,050	8.07
6	Thermal and Moisture Protection	524,404	20.83
7	Doors and Hardware	207,397	8.24
8	Glass and Glazing	27,501	1.09
9	Partitions	663,737	26.37
10	Tile	125,000	4.97
11	Ceilings and Acoustic	203,989	8.10
12	Flooring	270,897	10.76
13	Painting and Wall Coverings	127,974	5.08
14	Specialties	212,974	8.46
15	Equipment and Furnishings	128,541	5.11
16	Elevators	0	0.00
17	Fire Protection	151,020	6.00
18	Plumbing	975,160	38.74
19	HVAC Systems	1,208,160	48.00
20	Electrical	1,761,900	70.00
Subtotal		9,842,830	391.05
Permits, Bonds and Insurance	4.67%	603,566	23.98
Construction Contingency	6.00%	626,784	24.90
Design Contingency	20.0%	835,712	33.20
Owner Contingency	3.00%	313,392	12.45
Escalation or Other	4.00%	442,927	17.60
Fee	2.25%	259,112	10.29
Total		\$12,924,323	\$513.48



Option 1 Addition
3,292 SF

<i>Item</i>	<i>Description</i>		<i>Cost</i>	<i>Cost/SF</i>
1	General Requirements		432,147	131.27
2	Demolition		65,000	19.74
3	Excavation		30,891	9.38
4	Structure		418,846	127.23
5	Enclosure		726,907	220.81
6	Rough Carpentry		21,792	6.62
7	Finish Carpentry		25,759	7.82
8	Roofing and Sheet Metal		89,557	27.20
9	Thermal and Moisture Protection		63,932	19.42
10	Doors and Hardware		613,734	186.43
11	Glass and Glazing		183,551	55.76
12	Interior Partitions		116,811	35.48
13	Stone and Tile		21,743	6.60
14	Ceilings and Acoustic		20,674	6.28
15	Flooring		68,379	20.77
16	Painting		27,564	8.37
17	Specialties		76,106	23.12
18	Equipment and Furnishings		117,309	35.63
19	Special Construction		0	0.00
20	Elevators		0	0.00
21	Fire Protection		21,150	6.42
22	Plumbing		95,359	28.97
23	HVAC Systems		253,001	76.85
24	Electrical		237,642	72.19
Subtotal			3,727,855	1,132.40
	Permits, Bonds and Insurance	4.67%	252,266	76.63
	Construction Contingency	6.00%	238,807	72.54
	Design Contingency	20.0%	796,024	241.81
	Owner Contingency	3.00%	119,404	36.27
	Escalation or Other	4.00%	168,757	51.26
	Fee	2.25%	98,723	29.99
Total			\$5,401,835	\$1,640.90

Option #2 Budget





Option 2 Site

Item	Description	Cost
1	General Requirements	171,984
2	Excavation and Grading	304,567
3	Asphalt Paving	44,798
4	Concrete Work	211,387
5	Site Structures	107,884
6	Fencing	8,374
7	Specialty Paving	0
8	Signage and Striping	23,467
9	Site Specialties	3,710
10	Site Utilities	211,053
11	Storm Drainage Systems	39,371
12	Fire Protection	75,801
13	Landscaping and Irrigation	59,818
14	Electrical	47,569
Subtotal		1,309,784
	Permits, Bonds and Insurance	4.67% 80,316
	Construction Contingency	6.00% 83,406
	Design Contingency	8.00% 111,208
	Owner Contingency	3.00% 41,703
	Escalation or Other	4.00% 58,940
	Fee	2.25% 34,480
Total		\$1,719,838



Option 2- New Building
24,638 SF

<i>Item</i>	<i>Description</i>	<i>Cost</i>	<i>Cost/SF</i>	
1	General Requirements	1,120,964	45.50	
2	Demolition	75,000	3.04	
3	Excavation	305,315	12.39	
4	Structure	2,525,670	102.51	
5	Enclosure	1,373,296	55.74	
6	Rough Carpentry	69,861	2.84	
7	Finish Carpentry	130,684	5.30	
8	Roofing and Sheet Metal	637,116	25.86	
9	Thermal and Moisture Protection	178,442	7.24	
10	Doors and Hardware	851,172	34.55	
11	Glass and Glazing	343,723	13.95	
12	Interior Partitions	796,658	32.33	
13	Stone and Tile	74,313	3.02	
14	Ceilings and Acoustic	130,222	5.29	
15	Flooring	193,773	7.86	
16	Painting	104,933	4.26	
17	Specialties	101,815	4.13	
18	Equipment and Furnishings	650,532	26.40	
19	Special Construction	0	0.00	
20	Elevators	273,929	11.12	
21	Fire Protection	135,037	5.48	
22	Plumbing	526,835	21.38	
23	HVAC Systems	1,233,966	50.08	
24	Electrical	1,013,290	41.13	
Subtotal		12,846,548	521.41	
	Permits, Bonds and Insurance	4.67%	774,253	31.43
	Construction Contingency	6.00%	817,248	33.17
	Design Contingency	6.00%	817,248	33.17
	Owner Contingency	3.00%	408,624	16.59
	Escalation or Other	4.00%	577,522	23.44
	Fee	2.25%	337,850	13.71
Total		\$16,579,293	\$672.92	

Option #3 Budget





Option 3 Site

Item	Description	Cost
1	General Requirements	171,984
2	Excavation and Grading	387,938
3	Asphalt Paving	44,798
4	Concrete Work	283,209
5	Site Structures	164,918
6	Fencing	8,374
7	Specialty Paving	0
8	Signage and Striping	23,467
9	Site Specialties	3,710
10	Site Utilities	212,576
11	Storm Drainage Systems	45,576
12	Fire Protection	79,123
13	Landscaping and Irrigation	69,244
14	Electrical	48,502
Subtotal		1,543,419
	Permits, Bonds and Insurance	4.67% 94,643
	Construction Contingency	6.00% 98,284
	Design Contingency	8.00% 131,045
	Owner Contingency	3.00% 49,142
	Escalation or Other	4.00% 69,454
	Fee	2.25% 40,630
Total		\$2,026,617



Option 3 Building
25,771 SF

<i>Item</i>	<i>Description</i>	<i>Cost</i>	<i>Cost/SF</i>
1	General Requirements	1,120,964	43.50
2	Demolition	75,000	2.91
3	Excavation	313,017	12.15
4	Structure	2,638,624	102.39
5	Enclosure	1,516,793	58.86
6	Rough Carpentry	75,129	2.92
7	Finish Carpentry	132,346	5.14
8	Roofing and Sheet Metal	682,291	26.48
9	Thermal and Moisture Protection	193,497	7.51
10	Doors and Hardware	1,087,284	42.19
11	Glass and Glazing	373,713	14.50
12	Interior Partitions	866,723	33.63
13	Stone and Tile	74,966	2.91
14	Ceilings and Acoustic	135,758	5.27
15	Flooring	195,294	7.58
16	Painting	113,271	4.40
17	Specialties	103,762	4.03
18	Equipment and Furnishings	676,900	26.27
19	Special Construction	0	0.00
20	Elevators	273,929	10.63
21	Fire Protection	142,815	5.54
22	Plumbing	545,598	21.17
23	HVAC Systems	1,262,365	48.98
24	Electrical	1,060,914	41.17
Subtotal		13,660,951	530.09
	Permits, Bonds and Insurance	4.67%	823,337
	Construction Contingency	6.00%	869,057
	Design Contingency	6.00%	869,057
	Owner Contingency	3.00%	434,529
	Escalation or Other	4.00%	614,134
	Fee	2.25%	359,268
Total		\$17,630,333	\$684.12