TETRA TECH

February 26, 2020

Mr. Todd Davis
Site Assessment Manager
U.S. Environmental Protection Agency, Region 7
11201 Renner Blvd.
Lenexa, Kansas 66219

Subject: **Analysis of Brownfields Cleanup Alternatives Report**
Former St. Francis Hospital, Marceline, Linn County, Missouri
EPA Region 7, START 5, Contract No. 68HE0719D0001
Task Order 19F0101.002
Task Monitor: Todd Davis, Site Assessment Manager

Dear Mr. Davis:

Tetra Tech, Inc. (Tetra Tech) is submitting the attached Analysis of Brownfields Cleanup Alternatives report regarding the former St. Francis Hospital site in Marceline, Missouri. If you have any questions or comments pertaining to this submittal, please call the Project Manager at (816) 412-1748.

Sincerely,

Megan Sawyer
START Project Manager

Ted Faile, PG, CHMM
START Program Manager

Enclosures

cc: Randy Brown, EPA On-Scene Coordinator
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ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES REPORT

FORMER ST. FRANCIS HOSPITAL
MARCELINE, LINN COUNTY, MISSOURI

Superfund Technical Assessment and Response Team (START) 5

Contract No. 68HE0719D0001, Task Order No. 19F0101.002

Prepared For:

U.S. Environmental Protection Agency
Region 7
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February 26, 2020

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) tasked Tetra Tech, Inc. (Tetra Tech), under the Superfund Technical Assessment and Response Team (START) Contract 68HE0719D0001, to conduct an Analysis of Brownfields Cleanup Alternatives (ABCA) of the approximately 1.8-acre former St. Francis Hospital site (the site) at 108 East Howell Avenue in Marceline, Missouri (see Appendix A, Figure 1). The site hosts a 18,250-square-foot former hospital building and vacant green space. The current owner, Michael Wrenn, has interest in demolishing the existing building; however, future use of the site is unknown. Assumedly, the space will be used for commercial development and/or retail space.

A Phase II Environmental Site Assessment (ESA), completed by Tetra Tech, concluded that no further investigation and/or remediation of environmental media may be necessary, assuming future use of the site will remain non-residential and based on current understanding of the nature and extent of soil and groundwater contamination. Therefore, this ABCA presents cleanup alternatives regarding only asbestos-containing material (ACM), lead-based paint (LBP), and hazardous materials in the site building. Cleanup alternatives considered are based on state and federal regulations. Missouri Department of Natural Resources (MDNR) regulations outline ACM and LBP inspection, reporting, and disposal requirements for demolition or renovation of commercial buildings (MDNR 2017). This ABCA also includes preliminary cost estimates of evaluated cleanup alternatives.

2.0 SITE BACKGROUND AND DESCRIPTION

The approximately 1.8-acre site is at 108 East Howell Avenue in Marceline, Linn County, Missouri, and is owned by Michael Wrenn. The Phase I ESA report prepared by Terracon Consultants, Inc. (Terracon) indicated that in 1894, the site had hosted a steam carpenter shop and stable on the northern portion and a residence on the center southern portion; the remainder of the site was undeveloped. By 1902, a second-hand store was present on the eastern portion of the site. Between 1930 and 1939, B.B. Putman Memorial Hospital (former St. Francis Hospital) was on the northern portion of the site, St. Bonaventure R.C. School was on the southwestern portion, and a rooming building and garage were on the southeastern portion of the site. By 1950, an addition to the former St. Francis Hospital had been constructed. In 1977, the St. Bonaventure R.C. School no longer was present (Terracon 2018a). Currently, only the vacant former St. Francis Hospital remains, in disrepair, and the remainder of the site is green space.

The site lies within the south-southeast portion of Marceline, Missouri. It is bounded north by E Howell Avenue, followed by US Bank and Black Insurance Group; northeast by E Howell Avenue, followed by Dollar General; east by OK Tavern and storage sheds; southeast by vacant grassed land; south by E Garcia Avenue, followed by vacant grassed land; and southwest by Macon Electric (Terracon 2018a). The site is included on the Marceline, Missouri, U.S. Geological Survey (USGS) 7.5-minute topographic series maps (USGS 1979) (see Appendix A, Figure 1). Coordinates at the approximate center of the site are 39.713804 degrees north latitude and 92.950723 degrees west longitude.

3.0 PREVIOUS INVESTIGATIONS

Terracon completed a Phase I ESA of the site in 2018, identifying the following recognized environmental conditions (REC) (Terracon 2018a):

- In 1992, a release of diesel occurred from a historically identified, on-site, 6,000-gallon leaking underground storage tank (LUST). The release was remediated, and MDNR issued a No Further Action (NFA) letter in 1993; however, the cleanup occurred prior to establishment in 2004 of Missouri Risk-Based Corrective Action (MRBCA) guidelines. Therefore, lack of analytical data for comparison to current MRBCA guideline levels poses a Historical Recognized Environmental Concern (HREC) to the site.
- A historically identified dry-cleaning facility on the east-adjoining property could have released dry-cleaning solvents onto the site; therefore, the dry-cleaning facility poses a REC to the site.
- A historically identified filling station with petroleum products 50 feet north from the site poses a REC to the site.
- Petroleum products could have migrated onto the site from a historically identified automotive repair facility and gasoline tank 50 feet south-southwest of the site; therefore, the automotive repair facility and gasoline tank pose a REC to the site.

The Phase I ESA report therefore recommended an additional investigation to evaluate subsurface conditions at the site.

In April 2018, Terracon conducted an asbestos and LBP survey of the site. The report identified the following (Terracon 2018b):

Regulated asbestos-containing material (RACM) and ACM:

- Approximately 600 square feet (SF) of friable RACM identified in wall plaster
- Approximately 4,400 SF of friable RACM identified in ceiling plaster
- Approximately 360 SF of friable RACM identified in boiler insulation
- Approximately 280 SF of friable RACM identified in breech insulation
- Approximately 220 SF of friable RACM identified in tank insulation in the addition building
- Approximately 15 SF of friable RACM identified in tank insulation in the original building
- Approximately 1,600 linear feet (LF) (amount was increased during Tetra Tech survey) of friable RACM identified in layered paper pipe insulation
- Approximately 200 joint packings of friable RACM identified in the joint packings associated with layered paper pipe insulation
- Approximately 800 LF (amount was increased during Tetra Tech survey) of friable RACM identified in preformed pipe insulation

- Approximately 100 joint packings of friable RACM identified in mudded joint packings associated with preformed pipe insulation
- Approximately 400 LF (amount was increased during Tetra Tech survey) of friable RACM identified in corrugated pipe insulation
- Approximately 75 joint packings of friable RACM identified in joint packings associated with corrugated pipe insulation
- Approximately 75 joint packings of friable RACM identified in joint packings associated with fiberglass insulated piping
- Approximately 950 SF of Category I non-friable ACM identified in brown 12- by 12-inch floor tile and mastic
- Approximately 3,000 SF of Category I non-friable ACM identified in white 9- by 9-inch floor tile
- Approximately 3,000 SF of Category I non-friable ACM identified in tan 9- by 9-inch floor tile
- Approximately 600 SF of Category I non-friable ACM identified in tan 12- by 12-inch floor tile
- Approximately 400 SF of Category I non-friable ACM identified in gold 12- by 12-inch floor tile
- Approximately 30 fire doors containing friable RACM in fire door insulation
- Approximately 800 SF of Category II non-friable ACM identified in cement panels
- Approximately 96 windows with Category II non-friable ACM in window caulk.

LBP:

- Original Building:
  - Plaster walls and ceilings
  - First-floor waiting room wood ceiling
  - Wood window components
  - Wood doors and door jambs
  - Basement maintenance shop steel beam
  - Exterior downspouts
- Addition:
  - Plaster walls and ceilings
  - Metal stair components.

During field activities for the Phase II ESA conducted by START in October 2019, START located and quantified specific LBP areas based on results from Terracon's survey.

START performed a Phase II ESA in October 2019 to confirm or eliminate the RECs identified during the 2018 Phase I ESA by Terracon (Tetra Tech 2020). Samples of surface soil, subsurface soil, and groundwater were submitted for analyses for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), total petroleum hydrocarbons (TPH) – gasoline-range organics (GRO),

TPH – diesel-range organics (DRO), TPH – oil-range organics (ORO), and Resource Conservation and Recovery Act (RCRA) metals including mercury. Sampling results during this Phase II ESA indicated presence of contaminants in soil and groundwater at the site. Notably, concentrations of arsenic and lead in surface soil and groundwater samples were reported above non-residential benchmarks. Arsenic was detected in four surface soil samples at concentrations above the EPA Regional Screening Level (RSL) for industrial soil and the MRBCA Lowest Default Target Level (LDTL), and in one sample above the MRBCA Tier 1 non-residential Risk-based Target Level (RBTL); however, concentrations reported did not exceed the removal management levels (RML) of 68 milligrams per kilogram (mg/kg) for residential land use or 300 mg/kg for non-residential land use. In addition, none of the concentrations detected exceeded three times background, which the Hazard Ranking System guidance considers evidence of an observed release. Lead was also detected in four surface soil samples at concentrations above the MRBCA LDTL, but below the RSL. SVOCs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene] were also detected in surface soil samples, but at concentrations below regulatory benchmarks. In subsurface soil samples collected, arsenic was detected at concentrations above the EPA RSL, MRBCA LDTL, and minimum USGS-reported background concentration for Linn County. Arsenic concentrations in two samples also exceeded the USGS-reported mean background concentration in Linn County, but were below the USGS-reported maximum concentration. Therefore, arsenic is likely naturally occurring. Lead was detected in subsurface samples at concentrations exceeding MRBCA LDTLs, but below the USGS-reported mean background concentration in Linn County, and therefore lead is likely also naturally occurring. Mercury was also detected in one subsurface soil sample above the USGS-reported maximum background level in Linn County, but below the EPA RSL, MRBCA LDTL, and RBTL levels. Total arsenic and lead concentrations in the two unfiltered groundwater samples collected exceeded their respective maximum contaminant levels (MCL) and MRBCA Tier 1 non-residential RBTLs. However, arsenic and lead were not detected at concentrations exceeding a regulatory benchmark in filtered samples analyzed for dissolved metals; therefore, exceedances in samples analyzed for total metals may be attributed to suspended soil particles in the unfiltered samples. In addition, drinking water for the site is provided by the City of Marceline. The Phase II ESA concluded that based on analytical results from soil and groundwater samples, further investigation and/or remediation does not appear to be warranted.

Tetra Tech also completed a hazardous materials survey at the site in October 2019 that identified ACM and hazardous materials at the building on the subject property (Tetra Tech 2019). Based on these results, results of the asbestos and LBP survey by Terracon, and conclusions of the Phase II ESA, this ABCA presents cleanup alternatives regarding only ACM, LBP, and hazardous materials in the site building.

4.0 FUTURE USE

Future use of the site is unknown; however, the current property owner has expressed interest in demolishing the existing on-site building. The site, in downtown Marceline, is surrounded by local businesses. Assumedly, the space will be used for commercial development and/or retail space. Groundwater in the site vicinity is not known to be a source of drinking water, and no future use for this purpose is anticipated because drinking water in the area is provided by a municipal utility. Based on analytical results from soil and groundwater samples, further investigation and/or remediation does not appear to be warranted; however, ACM, LBP, and hazardous materials should be appropriately addressed prior to building renovation or demolition.

5.0 POTENTIAL CLEANUP ALTERNATIVES

The overall goal of any Brownfields cleanup action is to address environmental conditions preventing or impeding the preferred type of site redevelopment, and to do so in a manner protective of human health and the environment. This ABCA considers cleanup alternatives that would be based on state and federal regulations regarding ACM and LBP.

Brownfields cleanup alternatives were evaluated to address specific environmental impacts identified during the Phase II ESA (Tetra Tech 2020) and hazardous materials survey (Tetra Tech 2019). The purpose of the ABCA is to present viable cleanup alternatives based on site-specific conditions, technical feasibility, and preliminary cost evaluations.

The following sections describe Brownfields cleanup alternatives for addressing ACM, LBP, and hazardous materials, including a "No Action" alternative. Following the description, each alternative is evaluated in terms of its effectiveness, implementability, and cost. The purpose of evaluating each alternative is to determine its advantages and disadvantages relative to the other alternatives in order to identify key tradeoffs that would affect selection of the preferred alternative.

Effectiveness of an alternative refers to its ability to meet objectives of the Brownfields cleanup. Criteria applied to assess effectiveness of an alternative include the following:

- Overall protection of human health and the environment
- Compliance with applicable or relevant and appropriate requirements (ARAR) and other criteria, advisories, and guidance
- Long-term effectiveness
- Reduction of toxicity, mobility, or volume through treatment/removal
- Short-term effectiveness.

Criteria applied to assess implementability of an alternative are:

- Technical feasibility
- Administrative feasibility
- Availability of services and materials required during implementation of the alternative
- State acceptance
- Community acceptance.

Each alternative is evaluated to determine its estimated cost. The evaluations compare the alternatives' respective direct capital costs, which include equipment, services, and contingency allowances.

5.1 EVALUATED CONTAMINATION

Contamination evaluated as part of this ABCA includes ACM, LBP, and hazardous materials. The sections below discuss contaminants/materials identified during the Phase II ESA and hazardous materials survey at the site.

5.1.1 Asbestos-Containing Materials

During the hazardous materials survey, Tetra Tech collected 34 bulk samples of suspect ACM in accordance with National Emissions Standards for Hazardous Air Pollutants (NESHAP) as adopted by EPA and Asbestos Hazard and Emergency Response Act of 1986 (AHERA) protocols. Upon completion of sampling activities, the bulk samples were sent to Eurofins EMLab P&K Laboratories (Eurofins). Suspect ACM samples were analyzed per EPA Method 600/R-93/116 via polarized light microscopy (PLM) analysis and, in some cases, 400 Point Count. AHERA defines ACM as any material or product that contains more than 1 percent (%) asbestos. Figures 2A and 2B in Appendix A show ACM sample locations. The ACM survey yielded the following findings of regulated ACM:

- Regulated ACM was identified in 9" X 9" green floor tile (approximately 600 SF) in the original building on the second floor under white 9" X 9" floor tile in the northeast, northwest, southeast, and south middle rooms. The floor tile was represented by samples FT-1, -2, and -3. Laboratory results indicated that the floor tile contained 1.25% chrysotile asbestos.
- Regulated ACM was identified in 9" X 9" blue floor tile (approximately 225 SF) in the original building under white 9" X 9" floor tile on the second floor in the northeast and west rooms. The floor tile was represented by samples FT1-1, -2, and -3. Laboratory results indicated that the floor tile contained 4% chrysotile asbestos.
- Regulated ACM was identified in 9" X 9" tan floor tile and mastic (approximately 600 SF) in the original building under white 9" X 9" floor tile on the second floor in the southeast corner room, the east hallway, the north and west rooms. The floor tile and mastic were represented by samples FT2-1, -2, and -3. Laboratory results indicated that the floor tile and mastic contained 2% chrysotile asbestos.
- Regulated ACM was identified in 9" X 9" green floor tile (approximately 2,500 SF) in the original building under white 9" X 9" floor tile on the first floor in the northeast portion. The floor tile was represented by samples FT5-1, -2, and -3. Laboratory results indicated that the floor tile contained 3% chrysotile asbestos.

Terracon conducted a limited asbestos survey in April 2018 and found presence of ACM in multiple areas of the former St. Francis Hospital Building (Terracon 2018b). The following is a list of regulated ACM identified during Terracon's inspection that Tetra Tech did not re-sample:

- Regulated ACM was identified in friable textured wall plaster (approximately 600 SF) on the first floor of the original building in the waiting room. The plaster was represented by samples 04-SC4-10, -11, and -12. Laboratory results indicated 1.1% chrysotile asbestos in the samples.
- Regulated ACM was identified in friable textured ceiling plaster (approximately 4,400 SF) in the original building on the first floor and second floor ceilings, and on the basement and maintenance shop ceilings. The textured ceiling plaster was represented by samples 10-SC4-28, -29, and -30. Laboratory results indicated 0.5 to 1.2% chrysotile asbestos in the samples.
- Regulated ACM was identified in boiler insulation (approximately 360 SF) in the boiler room in the addition. The boiler insulation was represented by samples 29-MI1-85, -86, and -87. Laboratory results indicated 35 to 40% chrysotile asbestos in the samples.
- Regulated ACM was identified in breech insulation (approximately 280 SF) in the boiler room in the addition. The breech insulation was represented by samples 30-MI6-88, -89, and -90. Laboratory results indicated 45 to 70% chrysotile asbestos, and 2.6 and 6.2% amosite asbestos in the samples.
- Regulated ACM was identified in tank insulation (approximately 220 SF) in the boiler room in the addition. The tank insulation was represented by samples 31-MI3-91, -92, and -93. Laboratory results indicated 35 to 65% chrysotile asbestos and 1.2 to 6.3% amosite asbestos in the samples.
- Regulated ACM was identified in tank insulation (approximately 15 SF) in the mechanical room above chiller equipment in the original building basement. The tank insulation was represented by samples 32-MI3-94, -95, and -96. Laboratory results indicated 1.2, 1.3, and 15% amosite asbestos in the samples.
- Regulated ACM was identified in layered paper pipe insulation with mudded joint packings (approximately 1,600 LF and 200 mudded joints) in the following:
    - Original building: basement mechanical room, west hall, utility room, first floor hallways, south center utility room, northeast restroom, and second floor hallways
    - Addition: basement boiler room, kitchen cafeteria, restrooms, hallway, utility rooms, first and second floor hallways, north stair, utility rooms and above hard plaster ceilings, and third floor hallway.
- The layered paper pipe insulation was represented by samples 17-PI3-49, -50, and -51; the mudded joints were represented by samples 18-MJ3-52, -53 and, -54. Laboratory results indicated 4.1, 20, and 6.3% chrysotile in the respective pipe insulation samples. Laboratory results indicated <1 and 4.8% chrysotile asbestos in mudded joint samples 18-MJ3-52 and -53, respectively, and 10 and 6.8% amosite asbestos in mudded joint samples 18-MJ3-53 and -54, respectively.
- Regulated ACM was identified in preformed pipe insulation with mudded joint packings (approximately 800 LF and 100 mudded joints) in the following:
    - Original building: basement west hallway and utility rooms, first floor northeast room closet, southeast room closet, and second floor utility room closet
    - Addition: basement boiler room, kitchen, cafeteria, north utility rooms and stairs, restrooms, hallway, beneath south stair, first and second floors above hard plaster ceilings, and second floor southwest room closet.

- The preformed pipe insulation was represented by samples 34-PI1-100, -101, and -102; the mudded joints were represented by samples 35-MJ1-103, -104, and -105. Laboratory results indicated 10% amosite asbestos in pipe insulation samples 34-PI1-100 and -102, 15% amosite asbestos in pipe insulation sample 34-PI1-101, and 2.1 and 4.3% chrysotile asbestos in pipe insulation samples 34-PI1-100 and -102. Laboratory results indicated <1 and 10% amosite asbestos in mudded joint samples 35-MJ1-104 and -105, and 70, 25 and 15% chrysotile asbestos in mudded joint samples 35-MJ1-103, -104, and -105, respectively.
- Regulated ACM was identified in corrugated pipe insulation with mudded joint packings (approximately 400 LF and 75 mudded joints) in the original building basement mechanical room, west hallway and utility rooms, northeast and southeast storerooms, and attic steam loop. The corrugated pipe insulation was represented by samples 36-PI2-106, -107, and -108; the mudded joints were represented by samples 37-MJ2-109, -110, and -111. Laboratory results indicated 75% chrysotile in all pipe insulation samples and 40% chrysotile in mudded joint samples 37-MJ2-109 and -111 and 50% chrysotile in mudded joint sample 37-MJ2-110.
- Regulated ACM was identified in mudded joint packings with fiberglass insulated piping (approximately 75 mudded joints) in the following:
    - Original building: basement maintenance shop, east hall and east center storeroom, and second floor patient rooms in perimeter enclosures
    - Addition: basement boiler room and kitchen.
- The mudded joint packings were represented by samples 38-MJ4-112, -113, and -114. Laboratory results indicated 0.25 to 1.6% amosite and 0.5% chrysotile asbestos in the samples.
- Regulated ACM was identified in 12” X 12” brown floor tile and associated mastic (approximately 950 SF) in the original building waiting room. The materials were represented by samples 08-FT2-22, -23, and -24. Laboratory results indicated 1.1 to 1.5% chrysotile asbestos in the floor tile and 1.8 to 2.2% chrysotile asbestos in the black mastic.
- Regulated ACM was identified in 9” X 9” white floor tile (approximately 3,000 SF) throughout the first floor in the original building. The floor tile was represented by samples 09-FT1-25, -26, and -27. Laboratory results indicated 1.1 to 1.2% chrysotile asbestos in the samples.
- Regulated ACM was identified in 9” X 9” tan floor tile (approximately 3,000 SF) throughout the second floor in the original building. The floor tile was represented by samples 11-FT1-31, -32, and -33. Laboratory results indicated 1.2 to 1.7% chrysotile asbestos in the samples.
- Regulated ACM was identified in 12” X 12” tan floor tile and mastic (approximately 600 SF) in the west hall and Room 103 on the first floor in the original building. The floor tile and mastic were represented by samples 12-FT1-34, -35, and -36. Laboratory results indicated 1.1 to 1.4% chrysotile asbestos in the floor tile and 1.1 to 1.5% chrysotile asbestos in the black mastic.
- Regulated ACM was identified in 12” X 12” gold floor tile (approximately 400 SF) in the original building basement north center room and first floor northeast room closet. The floor tile was represented by samples 23-FT1-67, -68, and -69. Laboratory results indicated 1.8 to 2.7% chrysotile asbestos in the floor tile.
- Regulated ACM was identified in wood fire doors (approximately 30 doors) in the original building first and second floor hall and stairs and addition stairwells. The fire doors were represented by samples 01-FD-01, -02, and -03. Laboratory results indicated 25% chrysotile asbestos in the fire doors.

- Regulated ACM was identified in cement panels (approximately 800 SF) in the addition basement boiler room ceiling. The cement panels were represented by samples 33-CP1-97, -98, and -99. Laboratory results indicated 25% chrysotile asbestos in the cement panels.
- Regulated ACM was identified in window caulk (approximately 96 windows) on the original building and addition. The window caulk was represented by samples 20-CA1-58, -59, and -60, and 20-CA1-64, -65, and -66. Laboratory results indicated 8.3% chrysotile in the window caulk on the original building, and 1.5 to 3.1% chrysotile asbestos in the window caulk on the addition.

5.1.2 Lead-Based Paint

Terracon conducted a limited LBP survey in April 2018 (Terracon 2018b). Of the 172 x-ray fluorescence (XRF) readings of suspected LBP from painted surfaces screened by Terracon, 51 indicated reportable lead concentrations exceeding 1.0 milligram per square centimeter (mg/cm^2). The U.S. Department of Housing and Urban Development (HUD) considers LBP as paint with lead levels above 1.0 mg/cm^2. According to the Terracon Asbestos and LBP Survey Report (Terracon 2018b), the LBP survey proceeded according to protocols similar to the single-family housing inspection procedures in HUD guidelines (HUD 1997). Terracon screened paint-covered surfaces by use of an x-ray fluorescence (XRF) spectrometer. Figures 3A and 3B in Appendix A show LBP sample locations. The following is a list of LBP identified during Terracon's inspection that Tetra Tech did not re-screen:

- Approximately 40 SF of white painted steel beam in the original building basement maintenance shop tested positive for LBP, with XRF reading of 5.0 mg/cm^2.
- Approximately 280 LF of white painted wood door jamb in the original building basement tested positive for LBP, with XRF readings ranging from 1.2 to 5.0 mg/cm^2.
- Approximately 225 LF of blue window components on the first floor of the original building tested positive for LBP, with XRF readings of 1.79 and 2.07 mg/cm^2.
- Approximately 2,080 SF of tan painted plaster walls and ceilings in the original building (first floor southeast room closet, first floor northwest room, second floor northeast room and closet, second floor southwest room, and second-floor hallway) and in the addition basement hallway tested positive for LBP, with XRF reading of 1.0 mg/cm^2.
- Approximately 523 SF of blue painted wood ceiling in the original building first floor waiting room tested positive for LBP, with XRF reading of 2.65 mg/cm^2.
- Approximately 6,585 SF of white painted plaster wall and ceiling tested positive for LBP, with XRF reading of 1.0 mg/cm^2, at the following locations:
    - Original building: first floor center hall closet, first floor northwest bathroom, second floor Room 205, second floor northwest room, and second floor linen closet
    - Addition: second floor southeast room, third floor north stair, third floor east center room, third floor bathroom, second floor bathroom, second floor southeast room, second floor hallway, second floor bathroom, basement cafeteria, and basement men's bathroom.
- Approximately 15 LF of white painted wood window sash in the original building first floor south center room tested positive for LBP, with XRF reading of 1.0 mg/cm^2.

- Approximately 330 LF of white wood and metal painted exterior window trim on the exterior of the original building tested positive for LBP, with XRF readings of 2.41, 5.0, and 2.14 mg/cm^2.
- Approximately 1,850 SF of pink plaster wall in the original building second floor Room 205 and second floor southeast room, and in the addition first floor southeast room tested positive for LBP, with XRF reading of 1.0 mg/cm^2.
- Approximately 325 SF of green plaster wall in the original building basement north stair and addition first floor southeast room closet tested positive for LBP, with XRF reading of 1.0 mg/cm^2.
- Approximately 300 SF of brown plaster wall in the original building basement kitchen tested positive for LBP, with XRF reading of 1.0 mg/cm^2.
- Approximately 50 SF of tan metal wall in the original building basement hall tested positive for LBP, with XRF reading of 1.0 mg/cm^2.
- Approximately 75 SF of white metal door and door jamb in the addition boiler room tested positive for LBP, with XRF reading ranging from 2.07 to 5.0 mg/cm^2.
- Approximately 1,000 SF of green metal stair riser and stair newel in the addition tested positive for LBP, with XRF readings of 2.2 and 5.0 mg/cm^2.
- Approximately 345 SF of brown metal doors in the addition first and second floor north stair tested positive for LBP, with XRF reading of 1.47 mg/cm^2.
- Approximately 250 SF of white metal wall in the addition first floor north stair tested positive for LBP, with XRF reading of 1.0 mg/cm^2.
- Approximately 360 SF of tan glazed block wall in the addition second floor bathroom tested positive for LBP, with XRF reading of 1.0 mg/cm^2.
- Approximately 248 SF of white metal downspout on the exterior of the original building tested positive for LBP, with XRF reading of 1.37 mg/cm^2.
- Approximately 600 SF of yellow plaster wall on the second floor west center room in the addition tested positive for LBP, with XRF reading of 1.0 mg/cm^2.

5.1.3 PCBs

During the hazardous materials survey, Tetra Tech collected two samples of suspected PCB-containing caulk materials. Samples were collected following EPA guidance. Upon completion of sampling activities, the bulk samples were sent to ALS Environmental (ALS) laboratory in Holland, Michigan. Suspect PCB-containing caulk materials were analyzed per EPA Method 8082. EPA has set an action level of 50 parts per million (ppm) for PCBs in materials, and that was the benchmark used for this survey. Figures 2A and 2B in Appendix A show PCB sample locations. Laboratory results indicated that no sampled building material contained concentrations of PCBs above 50 ppm. Therefore, PCBs will not be addressed in this ABCA.

5.1.4 Hazardous Materials Inventory

A hazardous materials inventory of the building was completed as part of the hazardous materials survey to quantify items potentially containing hazardous materials inside the site building. Table 1 below summarizes hazardous materials identified inside the site building.

TABLE 1

IDENTIFIED HAZARDOUS MATERIALS
FORMER ST. FRANCIS HOSPITAL, MARCELINE, MISSOURI

Type of Hazardous Material	Assessed Quantity
White Goods	
Industrial stove	1
Grease cooker	1
Lamps	
Fluorescent	12
Compact Fluorescent (CFL)	None observed
Neon	None observed
PCB Ballasts	
Fluorescent	12
Batteries	
Smoke Detectors	None observed
Emergency Lighting System	None observed
Exit Signs	25
Automobile	None observed
Heating, Ventilation, and Air Conditioning	
Thermostats	42 (mercury)
Chlorofluorocarbons (CFC) and Hydrochlorofluorocarbons (HCFC) Refrigerants	
Air Conditioners	None observed
Water Fountains	10
Fire Extinguishers	2
Others	None observed
Other: misc. hazardous wastes, household hazardous wastes, oils	
Computers	2
Paints	3
Elevator	1
Tanks (aboveground, underground)	3 Aboveground: (2) 250-gallon and (1) 300-gallon
Others (describe) Miscellaneous Cleaning Products	10 containers
Others (describe) Diesel	15-gallon diesel can

5.2 EVALUATION OF CLEANUP ALTERNATIVES

Evaluations of cleanup alternatives are based on the anticipated future use scenario for the site—space used for commercial development and/or retail space. Based on future use of the subject property for commercial purposes, and because building demolition is expected, only two alternatives were evaluated for cleanup of ACM, and two options were evaluated to address LBP and hazardous materials. Evaluations took into account MDNR Brownfields/Voluntary Cleanup Program (B/VCP) procedural

requirements—because cleanup projects implemented with EPA Brownfields Cleanup funding require participation in the MDNR B/VCP. For reference, fees associated with enrollment in the MDNR B/VCP include a $200 application fee and refundable oversight deposit of $5,000. Options for ACM, LBP, and hazardous materials assume cleanup prior to demolition of the on-site structure.

5.2.1 Asbestos-Containing Material

Regarding ACM, two options were evaluated: (1) no action and (2) proper abatement. Alternative 2 can achieve clearance criteria under the MDNR B/VCP.

Alternative 1: No Action

Alternative 1 (no action) would leave ACM in place at the site.

Effectiveness

This alternative would not be effective if the site building is demolished. Redevelopment of areas containing ACM would have to be restricted to ensure that those materials remain undisturbed. Additionally, in accordance with NESHAP regulations, demolition of the site building cannot proceed before proper abatement; therefore, demolition could not occur if this alternative would be selected. This alternative would also be ineffective in achieving the goal of reducing health risks.

Implementation

Implementation of this alternative is straightforward—ACM left in place. Future redevelopment would have to consider the location and condition of the ACM, and ensure that those materials remain undisturbed. Demolition could not occur prior to abatement.

Cost

This alternative would not involve any direct costs.

Alternative 2: Abatement of ACM

Alternative 2 would involve, prior to demolition, proper abatement of ACM identified in the site building. Abatement by a licensed State of Missouri asbestos abatement contractor would accord with applicable local, state, and federal regulations. Regulatory clearance would be obtained through successful

implementation of a pre-approved Remedial Action Plan (RAP), including clearance sampling and pre/post-abatement inspections by MDNR (if required).

Effectiveness

If all identified ACM would be removed, Alternative 2 would address the risk to human health posed by ACM. In addition, full abatement would allow for redevelopment of the site without restrictions pertaining to disturbance of ACM.

Implementation

Abatement by a licensed State of Missouri asbestos abatement contractor would accord with applicable local, state, and federal regulations. EPA, State and Occupational Safety and Health Administration (OSHA) requirements must be met during removal of ACM and during demolition due to the presence of LBP. These regulations would be addressed in the MDNR B/VCP Remediation Plan and Health and Safety Plan. ACM was identified at the site in 12 of 34 samples collected by Tetra Tech in 2019, and in all 22 samples collected by Terracon in 2018. The following materials were determined to contain asbestos: 9- by 9-inch floor tile with associated mastic, textured wall plaster, textured ceiling plaster, boiler insulation, breech insulation, tank insulation, pipe insulation with mudded joint packings, mudded joint packings with fiberglass insulated piping, 12- by 12-inch floor tile with associated mastic, wood fire doors, cement panels, and window caulk. Full abatement would include removal of these materials.

Cost

Estimated abatement costs were gathered from local vendor, Titan Environmental Services, Inc. (Titan). Costs per SF or LF are provided, and include removal and disposal costs. Abatement cost for the ACM associated with the site building is estimated at $400,975. No restoration costs have been accounted for. Table 2 below summarizes abatement costs for ACM identified in the site building. Additional costs to be considered, particularly if the site would be enrolled in the MDNR B/VCP, include those for technical reports (RAP and Final Abatement Report) and collection of clearance samples. Estimated cost of technical plans/reports is $3,500 per plan/report (cost of plans includes consideration of all environmental issues to be addressed by cleanup activities). Additional costs for oversight and clearance sampling are considered variable based on requirements and duration of abatement. Estimated cost associated with oversight and clearance is $4,500. Total cost of Alternative 2 is estimated at $408,975.

TABLE 2

ASBESTOS-CONTAINING MATERIALS ABATEMENT COSTS
FORMER ST. FRANCIS HOSPITAL, MARCELINE, MISSOURI

Material Description	Material Locations	Estimated Quantity	Cost/Unit ($/SF, $/LF, or $/EA)	Total Cost
9" X 9" Green Floor Tile with Black Mastic	Original Building East Portion Second Floor Under White 9" X 9" Floor Tile in the Northeast, Northwest, Southeast, and South Middle Rooms	600 SF	$6.00	$3,600
9" X 9" Blue Floor Tile with Black Mastic	Original Building Second Floor Under White 9" X 9" Floor Tile in the Northeast and West Rooms	225 SF	$6.00	$1,350
9" X 9" Tan Floor Tile with Black Mastic	Original Building Second Floor Under 9" X 9" White Floor Tile in the Southeast Corner Rooms of the East Hallway, and North and West Rooms	600 SF	$6.00	$3,600
9" X 9" Green Floor Tile with Black Mastic	Original Building, Under 9" X 9" White Floor Tile in the Northeast Portion of the First Floor	2,500 SF	$5.75	$14,375
Textured Wall Plaster	Original Building First Floor Waiting Room	600 SF	$15.00	$9,000
Textured Ceiling Plaster	Original First and Second Floor Ceilings Throughout, Basement and Maintenance Shop Ceiling	4,400 SF	$12.00	$52,800
Boiler Insulation	Addition Basement Boiler Room – Two Boilers	360 SF	$85.00	$30,600
Breech Insulation	Addition Basement Boiler Room	280 SF	$85.00	$23,800
Tank Insulation	Addition Basement Boiler Room – Two Tanks	220 SF	$85.00	$18,700
Tank Insulation	Original Building Basement Mechanical Room Above Chiller Equipment	15 SF	$100.00	$1,500.00
Layered Paper Pipe Insulation with Mudded Joint Packings	Original Building: Basement Mechanical Room, West Hall, Utility Room, First Floor Hallways, South Center Utility Room, Northeast Restroom, Second Floor Hallways.	1,600 LF	$45.00	$72,000
	Addition: Basement Boiler Room, Kitchen Cafeteria, Restrooms, Hallway, Utility Rooms, North Stair, First and Second floor hallways, Utility Rooms and Above Hard Plaster Ceilings, Third Floor Hallway	200 Mudded Joints	$50.00 each	$10,000

TABLE 2 (Continued)

ASBESTOS-CONTAINING MATERIALS ABATEMENT COSTS
FORMER ST. FRANCIS HOSPITAL, MARCELINE, MISSOURI

Material Description	Material Locations	Estimated Quantity	Cost/Unit ($/SF, $/LF, or $/EA)	Total Cost
Preformed Mag./Cal Pipe Insulation with Mudded Joint Packings	Original Building: Basement West Hallway and Utility Rooms, First Floor Northeast Room Closet, Southeast Room Closet, Second Floor Utility Room Closet. Addition: Basement Boiler Room, Kitchen, Cafeteria, North Utility Rooms and Stairs, Restrooms, Hallway, Beneath South Stair, First and Second Floors Above Hard Plaster Ceilings, Second Floor Southwest Room Closet	800 SF	$45.00	$36,000
		100 Mudded Joints	$50.00 each	$5,000
Corrugated Pipe Insulation with Mudded Joint Packings	Original Building Basement Mechanical Room, West Hallway and Utility Rooms, Northeast and Southeast Storerooms, Attic Steam Loop	400 LF	$45.00	$18,000
		75 Mudded Joints	$50.00 each	$3,750
Mudded Joint Packings with Fiberglass Insulated Piping	Original Building: Basement Maintenance Shop, East Hall and East Center Storeroom, Second Floor Patient Rooms in Perimeter Enclosures. Addition: Basement Boiler Room, Kitchen	75 Mudded Joints	$50.00 each	$3,750
12” x 12” Brown Floor Tile and Mastic	Original Building Waiting Room Under Carpet	950 SF	$5.00	$4,750
9” X 9” White Floor Tile and Mastic	Original Building First Floor Throughout	3,000 SF	$5.00	$15,000
9” X 9” Tan Floor Tile	Original Building Second Floor Throughout	3,000 SF	$5.00	$15,000
12” X 12” Tan Floor Tile and Mastic	Original Building West Hall and Room 103	600 SF	$5.00	$3,000
12” X 12” Gold Floor Tile	Original Building Basement North Center Room, First Floor NE Room Closet	400 SF	$5.00	$2,000
Wood Fire Doors	Original Building 1st and 2nd Floor Hall and Stairs, Addition Stairwells	30 Doors	$100.00 each	$3,000
Cement Panels	Addition Basement Boiler Room Ceiling	800 SF	$15.00	$12,000
Window Caulking	Original Building and Addition Windows Perimeter Caulking	96 Windows	$400.00 each	$38,400
Total ACM Abatement Cost				**$400,975**

Notes:

ACM Asbestos-containing material
EA Each
LF Linear feet
SF Square feet

5.2.2 Lead-Based Paint

Two cleanup alternatives were evaluated to address LBP found on structures associated with the subject property: (1) no action and (2) removal by demolition. Alternative 2 can achieve clearance criteria under the MDNR B/VCP.

Alternative 1: No Action

Alternative 1 (no action) would leave LBP in place at the site.

Effectiveness

This alternative would not be effective if the site building is demolished. Restrictions on proposed demolition of materials containing LBP (depending on condition of the LBP) would be necessary to ensure those materials remain undisturbed. This alternative would also be ineffective in achieving the goal of reducing health risks.

Implementation

Implementation of this alternative would be straightforward—leaving the LBP in place.

Cost

This alternative would not involve any direct costs.

Alternative 2: LBP Removal by Demolition

Alternative 2 includes removal (by demolition) for proper disposal. All surfaces/components that contain LBP determined to be in good condition can be removed/demolished and disposed of as demolition waste—assuming satisfactory results of a disposal characterization test via Toxicity Characterization Leaching Procedure (TCLP) analysis prior to disposal of the demolition debris. Application of removal/demolition techniques would be necessary in a manner that does not chip, shred, mulch, or mill the LBP. For the future site use scenario for the subject property building (i.e., demolition), this alternative is likely the most appropriate and economically feasible. Costs specified below assume removal of materials containing LBP.

This alternative is a direct approach, because LBP would be removed, and controls would not be required to manage LBP left in place prior to building demolition. Removal and off-site disposal of

LBP-containing material as special (demolition) waste would occur. Disposal characterization testing would be required prior to disposal.

Effectiveness

If all identified LBP is removed, Alternative 2 would be effective in addressing the risk to human health posed by the LBP. This alternative would allow for demolition of the site building without restrictions pertaining to disturbance and management of LBP.

Implementation

Abatement would accord with applicable state and federal regulations. Prior to disposal, demolition debris would require characterization via TCLP analysis. Surfaces coated with LBP would be disposed of with general building demolitions debris. EPA, State, and OSHA requirements must be met during removal of ACM and during demolition due to the presence of LBP. These regulations will be addressed in the MDNR B/VCP Remediation Plan and Health and Safety Plan.

Cost

Estimated costs of this alternative were gathered from local vendors. Prior to disposal, demolition debris would require characterization via TCLP analysis. Assuming 20 samples will be collected for TCLP analysis, estimated cost is $2,500. Additional costs to be considered, particularly if the site would be enrolled in the MDNR B/VCP, include technical reports (RAP and Final Abatement Report).

5.2.3 Hazardous Materials

For hazardous materials assumed to remain in buildings scheduled for renovation or demolition, two options were evaluated: (1) no action and (2) proper removal and disposal.

Alternative 1: No Action

Alternative 1 (no action) would leave hazardous materials in place at the site.

Effectiveness

This alternative would not be effective regarding redevelopment of the property, and could pose health risks to future occupants.

Implementation

Implementation of this alternative would require no effort because no containment, treatment, removal, or monitoring of contaminants would occur.

Cost

No costs are associated with this alternative because no activities would occur.

Alternative 2: Removal of Hazardous Materials

Alternative 2 would involve removing hazardous materials for proper disposal/recycling prior to rehabilitation or demolition activities. Typically, these materials are classified as universal waste and should be handled by a qualified waste management company.

Effectiveness

Alternative 2 would be effective in removing the items potentially containing hazardous materials.

Implementation

Disposal would be arranged by a qualified waste management company. Hazardous materials inside site buildings would be removed for proper disposal/recycling.

Cost

Estimated disposal/recycling costs were gathered from local vendors and determined via professional judgment. Estimated disposal/recycling cost for the hazardous materials associated with the building is $12,033. Table 3 below lists removal costs for hazardous materials identified in the site building.

TABLE 3

HAZARDOUS MATERIALS REMOVAL COSTS
FORMER ST. FRANCIS HOSPITAL, MARCELINE, MISSOURI

Items	Quantity	Costs Per Unit	Estimated Costs
Industrial Stove	1	$500.00	$500
Grease Cooker	1	$500.00	$500
Fluorescent Lamps	12	$14.00	$168
Fluorescent, Polychlorinated Biphenyl (PCB)-containing Ballasts	12	$8.75	$105
Exit Signs with Batteries	25	$20.00	$500
Mercury-Containing Thermostats	42	$20.00	$840
Water Fountains	10	$50.00	$500
Fire Extinguishers	2	$60.00	$120
Computers	2	$25.00	$50
Paints	3	$50.00	$150
Elevator	1	$5,000.00	$5,000
Tanks	3 Aboveground: (2) 250-gallon and (1) 300-gallon	$1,000	$3,000
Miscellaneous Cleaning Products	10 containers	$50.00	$500
15-Gallon Diesel Can	1	$100.00	$100
Total Estimated Removal/Disposal Cost			**$12,033**

5.3 RECOMMENDED CLEANUP ALTERNATIVES

This section recommends cleanup alternatives for ACM, LBP, and hazardous materials at the site.

5.3.1 Asbestos-Containing Material

Alternative 2—abatement of ACM—is the recommended cleanup alternative for ACM. Future plans at the site include demolition; therefore, removal of the identified ACM would be required prior to initiation of those activities.

5.3.2 Lead-Based Paint

Alternative 2—LBP removal by demolition—is the recommended cleanup alternative for LBP identified at the site. This is the most cost-effective and direct option for addressing LBP at the site.

5.3.3 Hazardous Materials

Alternative 2—removal of hazardous materials—is the recommended cleanup alternative for hazardous materials in the site building.

5.3.4 Total Cleanup Cost

Total cleanup costs are summarized in Table 4 below. Based on the recommended cleanup alternatives, estimated total cleanup cost is $428,708, which includes site enrollment in the MDNR B/VCP and technical consulting fees. The fee for site enrollment in the MDNR B/VCP program is $5,200. Whether the site will be enrolled in the MDNR B/VCP program is unknown; however, fees associated with the program have been included for planning purposes.

TABLE 4

SUMMARY OF COSTS
FORMER ST. FRANCIS HOSPITAL, MARCELINE, MISSOURI

Contaminant/Material	Recommended Alternative	Action - Cost	Total Cost
ACM	Alternative 2 – Abatement of ACM	Abatement – $400,975	$408,975
		Oversight and Clearance Sampling – $4,500	
		Technical Reporting – $3,500	
LBP	Alternative 2 – LBP Removal by Demolition	TCLP Analysis - $2,500	$2,500
Hazardous Materials	Alternative 2 – Removal of Hazardous Materials	Removal and Disposal/Recycling – $12,033	$12,033
MDNR B/VCP Fees			$5,200
Total Cost			**$428,708**

Notes:

ACM Asbestos-containing material
B/VCP Brownfields/Voluntary Cleanup Program
LBP Lead-based paint
MDNR Missouri Department of Natural Resources

6.0 REFERENCES

Missouri Department of Natural Resources (MDNR). 2017. Air Pollution Control Program Fact Sheet – Asbestos Requirements for Demolition and Renovation Projects. May.

Terracon Consultants, Inc. (Terracon). 2018a. Phase I Environmental Site Assessment: Former St. Francis Hospital-Phase I, 108 Howell Avenue, Marceline, Linn County, Missouri. June 4.

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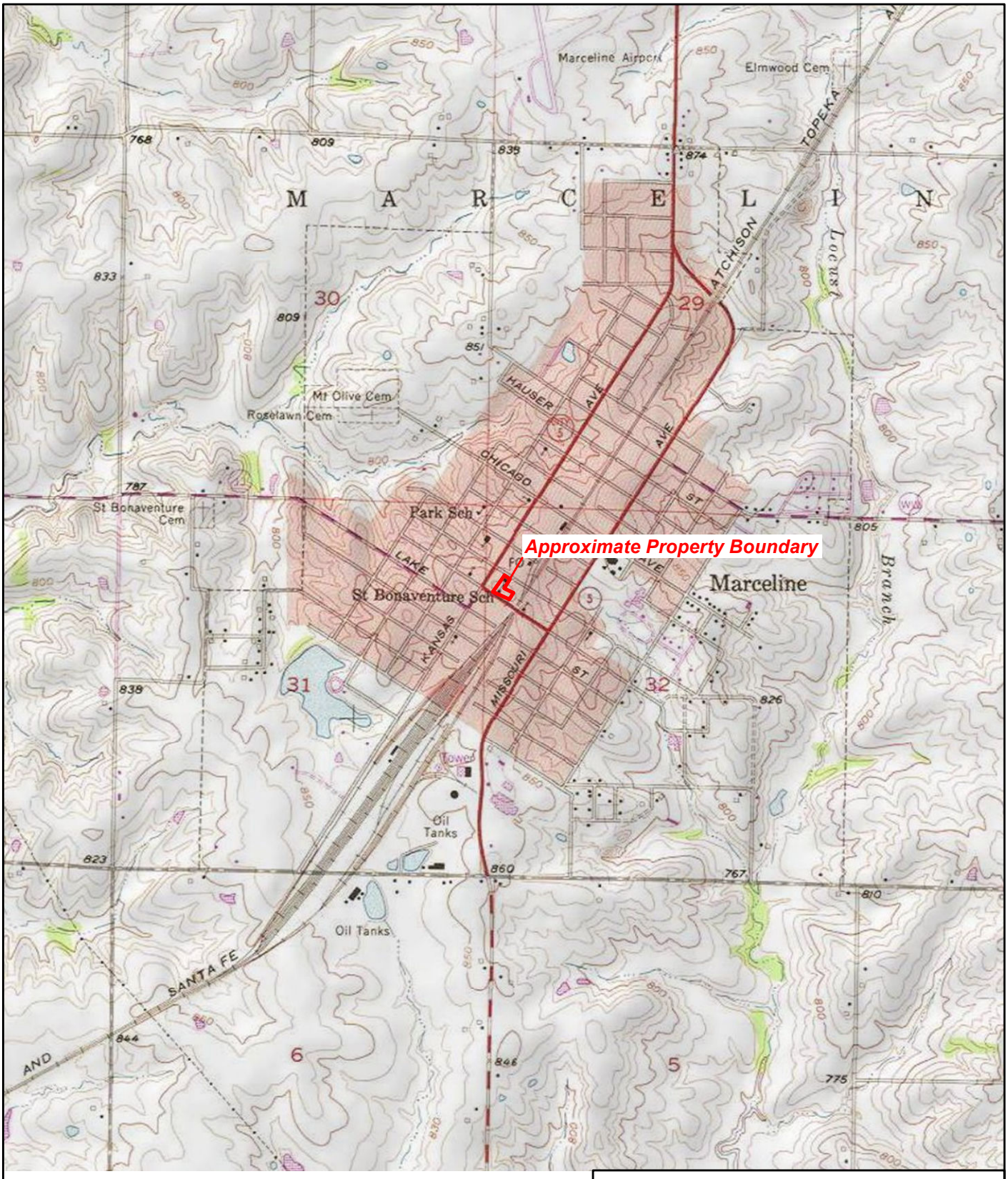
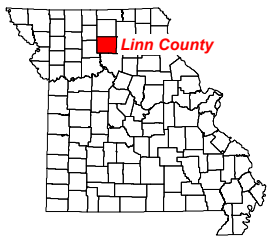
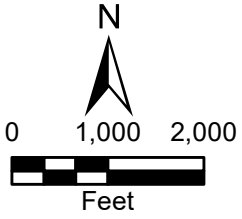
U.S. Geological Survey (USGS). 1979. Marceline Quadrangle. 7.5-Minute Topographic Series.

APPENDIX A

FIGURES







Source: USGS Marceline, MO 7.5 Minute Topo Quad, 1979

Former St. Francis Hospital
Marceline, Missouri

Figure 1

Site Location Map

TETRA TECH

Date: 6/18/2019 Drawn By: Nick Wiederholt Project No: X903019F0101.002

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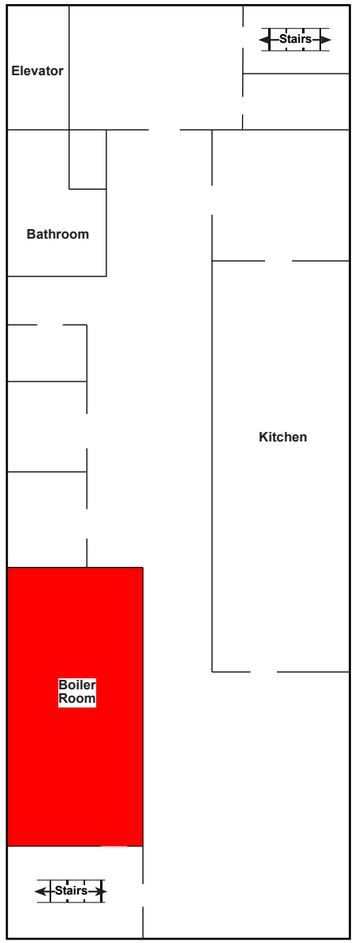
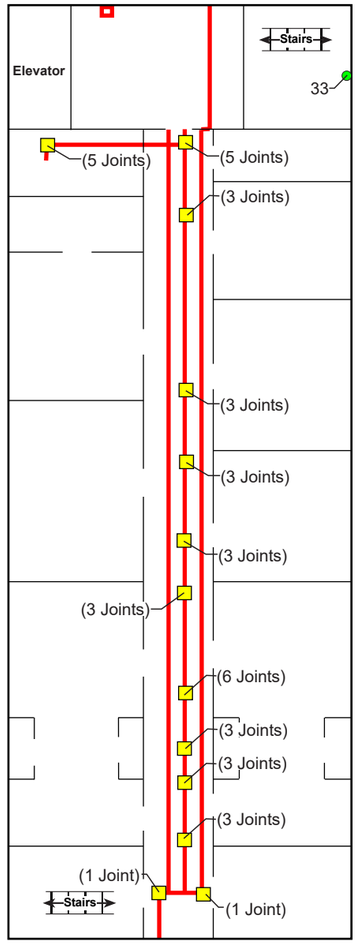
Sample Key Table

Key	Sample No.
Asbestos	
1	FT-1
2	FT-2
3	FT-3
4	FT1-1
5	FT1-2
6	FT1-3
7	FT2-1
8	FT2-2
9	FT2-3
10	FT3-1
11	FT3-2
12	FT3-3
13	FT4-1
14	FT4-2
15	FT4-3
16	RC-1
17	FL-1
18	FL-2
19	FL-3
20	FL1-1
21	FL1-2
22	FL1-3
23	RC1-1
24	RC1-2
25	RC1-3
26	FT5-1
27	FT5-2
28	FT5-3
29	TER-1
30	TER-2
31	TER-3
32	WG-1
33	WG-2
34	WG-3
Polychlorinated biphenyl	
PCB-1	Additional
PCB-2	Original

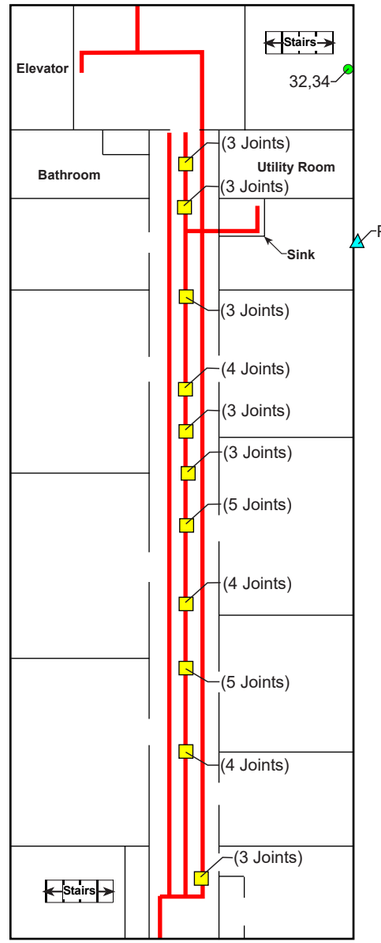
Basement



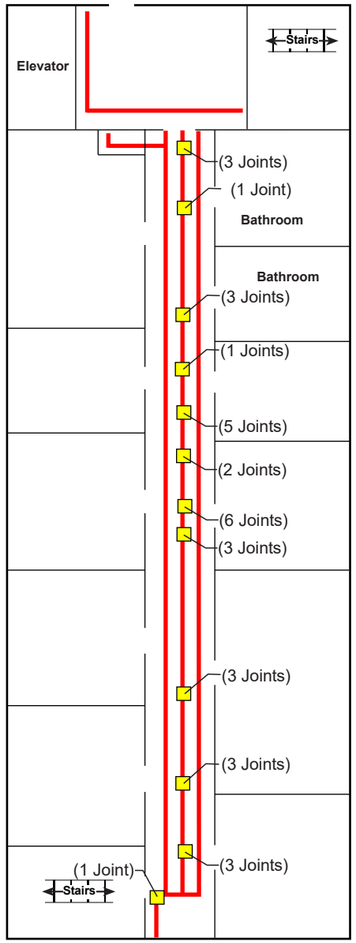
First Floor



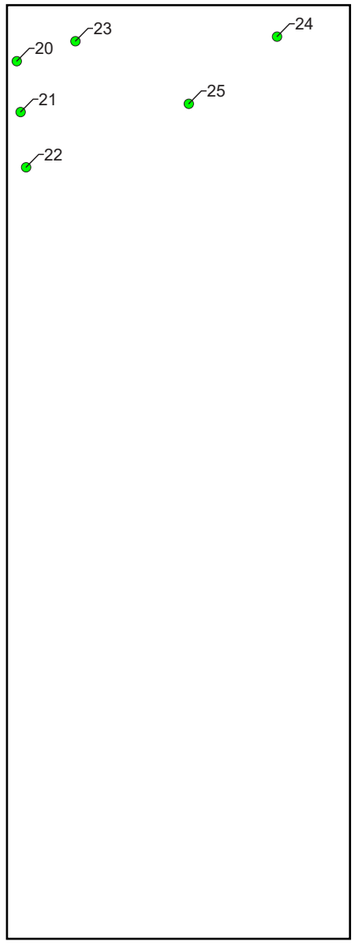
Second Floor



Third Floor



Roof



Legend

- Asbestos-containing joint
- Non-asbestos-containing material sample location
- PCB sample location
- Asbestos-containing TSI pipe
- Asbestos-containing TSI and ceiling transite panels
- PCB Polychlorinated biphenyl
- TSI Thermal system insulation

Note: The asbestos-containing material sample locations were collected by Tetra Tech.

N

Not to Scale

Former St. Francis Hospital
Marceline, Missouri

Figure 2A
Asbestos and PCB
Sample Location Map - Addition

TETRA TECH

Date: 11/12/2019 Drawn By: Nick Wiederholt Project No: X903019F0101.002

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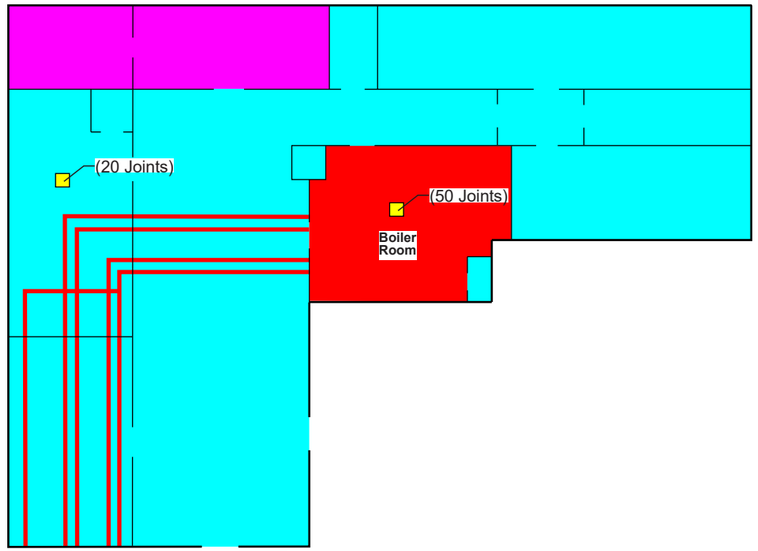
Sample Key Table

Key	Sample No.
Asbestos	
1	FT-1
2	FT-2
3	FT-3
4	FT1-1
5	FT1-2
6	FT1-3
7	FT2-1
8	FT2-2
9	FT2-3
10	FT3-1
11	FT3-2
12	FT3-3
13	FT4-1
14	FT4-2
15	FT4-3
16	RC-1
17	FL-1
18	FL-2
19	FL-3
20	FL1-1
21	FL1-2
22	FL1-3
23	RC1-1
24	RC1-2
25	RC1-3
26	FT5-1
27	FT5-2
28	FT5-3
29	TER-1
30	TER-2
31	TER-3
32	WG-1
33	WG-2
34	WG-3
Polychlorinated biphenyl	
PCB-1	Additional
PCB-2	Original

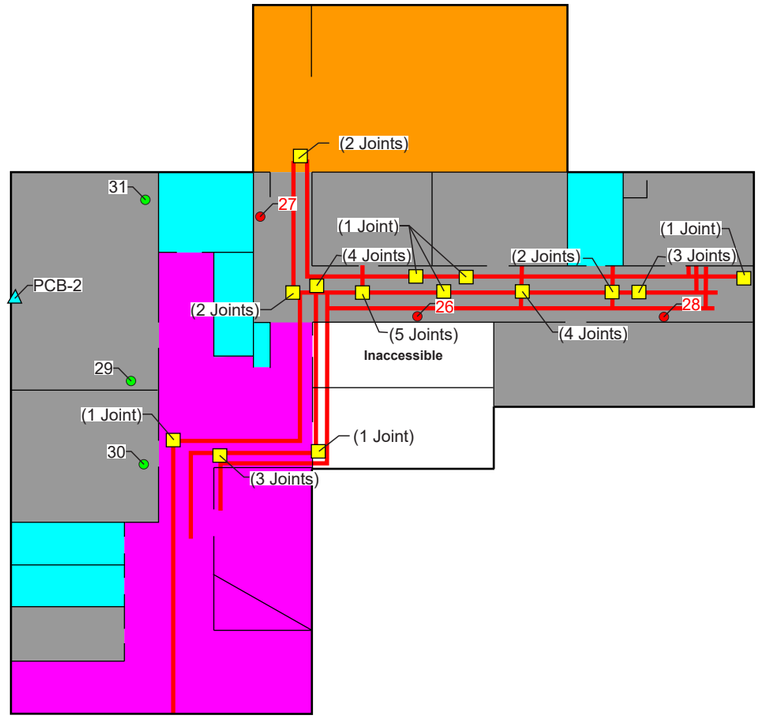
Legend

- Asbestos-containing material sample location
- Non-asbestos-containing material sample location
- PCB sample location
- Asbestos-containing floor tile and mastic / textured ceiling plaster
- Asbestos-containing floor tile and mastic / textured ceiling plaster and wall plaster
- Asbestos-containing floor tile / textured ceiling plaster
- Asbestos-containing textured ceiling plaster
- Asbestos-containing TSI
- PCB Polychlorinated biphenyl
- TSI Thermal system insulation

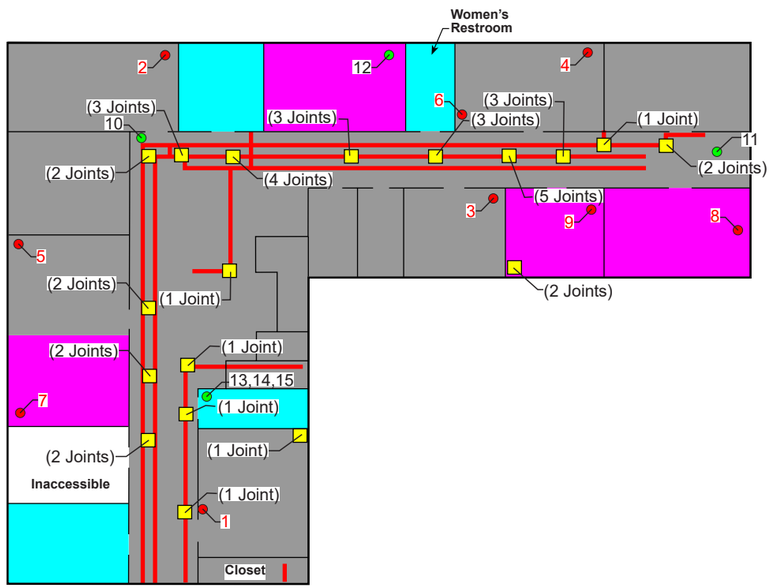
Basement



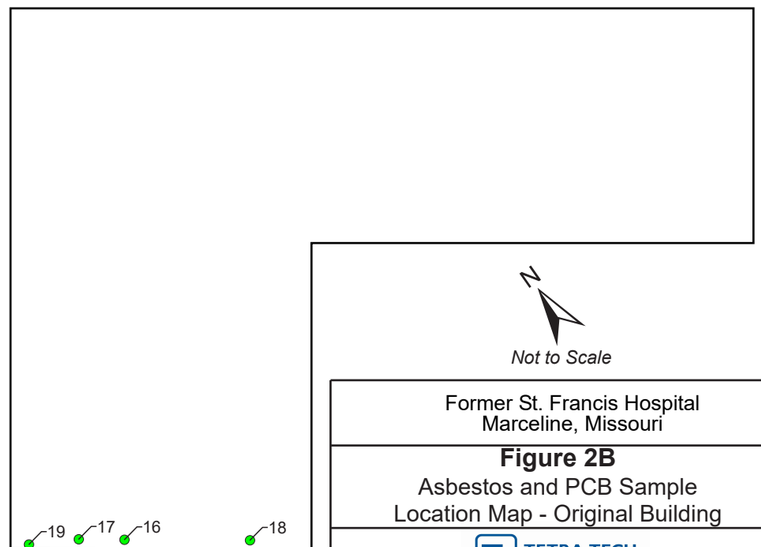
First Floor



Second Floor



Roof



Note: The asbestos-containing material sample locations were collected by Tetra Tech.

Not to Scale

Former St. Francis Hospital
Marceline, Missouri

Figure 2B
Asbestos and PCB Sample Location Map - Original Building

TETRA TECH

Date: 11/12/2019 Drawn By: Nick Wiederholt Project No: X903019F0101.002

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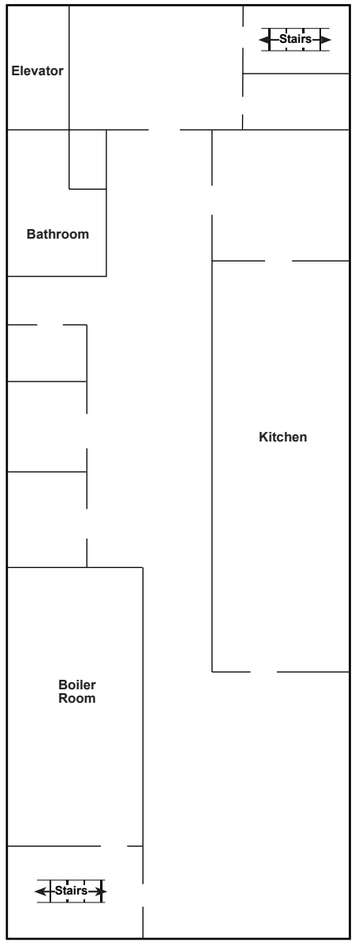
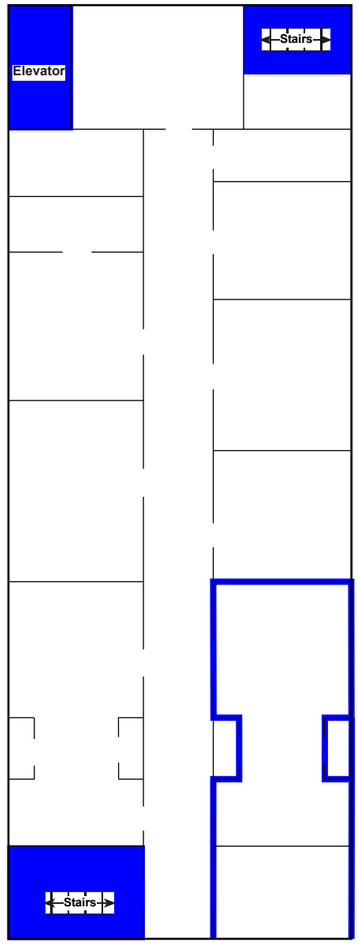
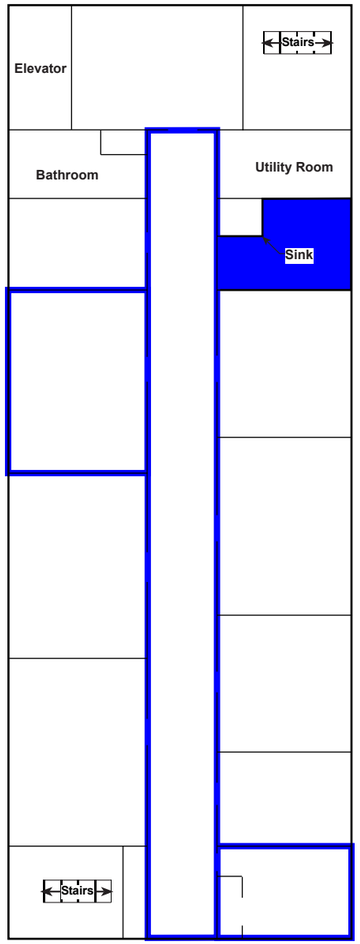
Basement



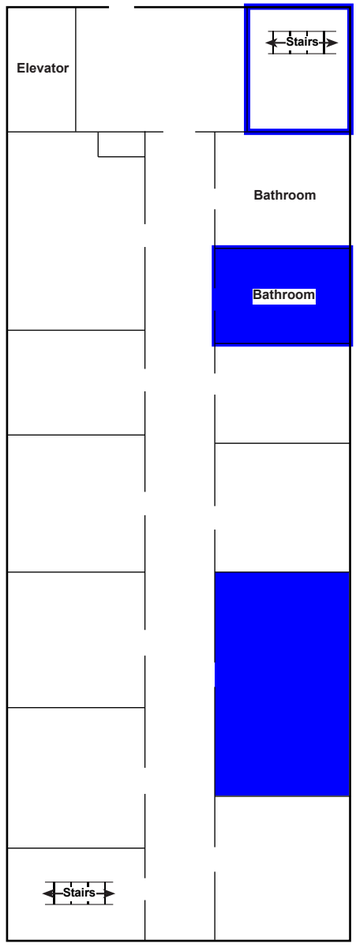
First Floor



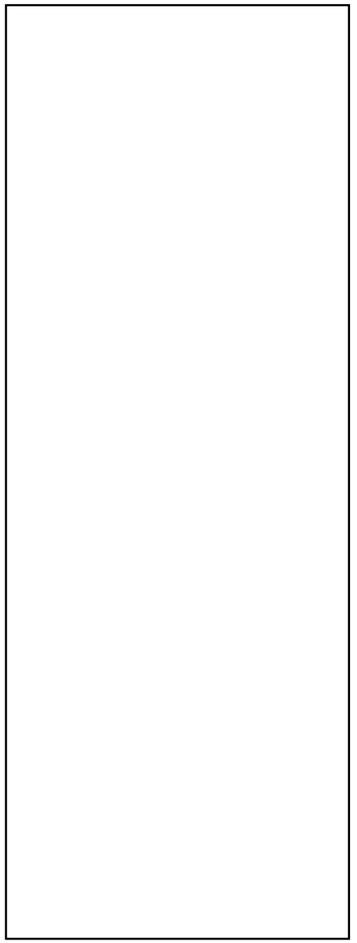
Second Floor



Third Floor



Roof



Legend

Area containing LBP

LBP Lead-based Paint

Not to Scale

Former St. Francis Hospital
Marceline, Missouri

Figure 3A
Lead-Based Paint
Location Map - Addition

TETRA TECH

Date: 11/5/2019 Drawn By: Nick Wiederholt Project No: X903019F0101.002

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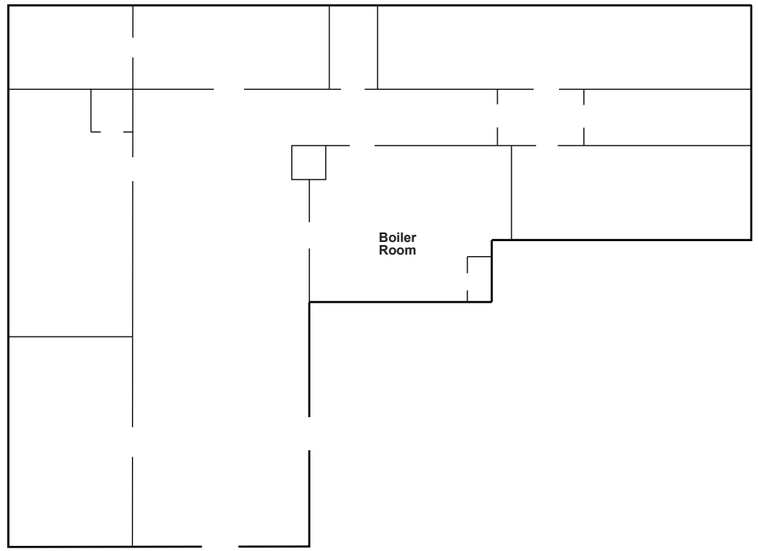
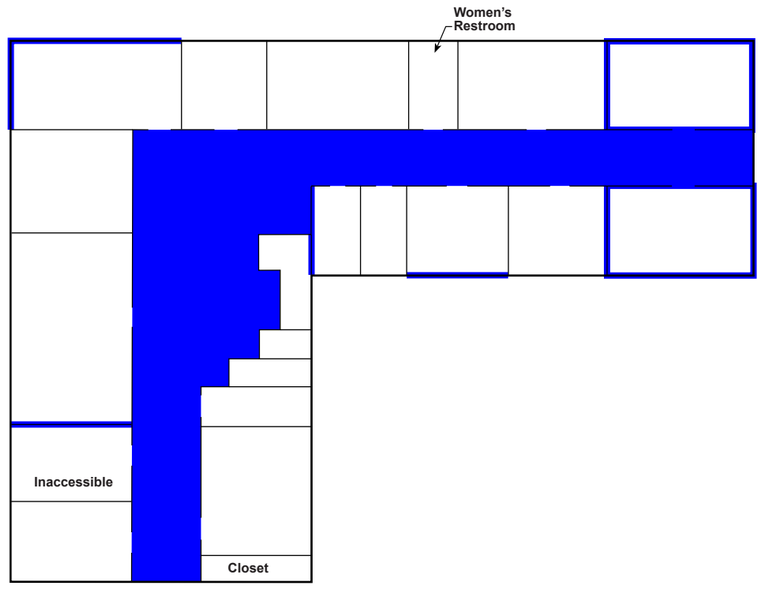
Basement



First Floor

Second Floor



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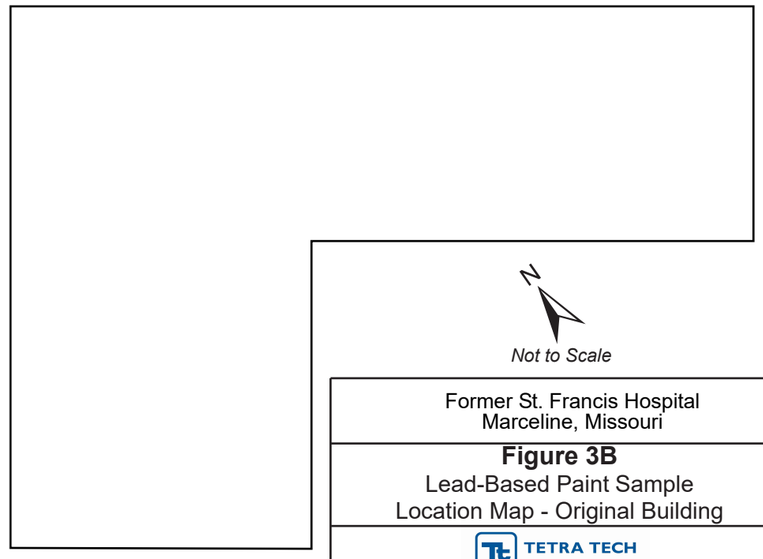

Legend

Area containing LBP

LBP Lead-based Paint

Not to Scale

Former St. Francis Hospital
Marceline, Missouri

Figure 3B
Lead-Based Paint Sample
Location Map - Original Building

TETRA TECH

Date: 11/5/2019 Drawn By: Nick Wiederholt Project No: X903019F0101.002

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