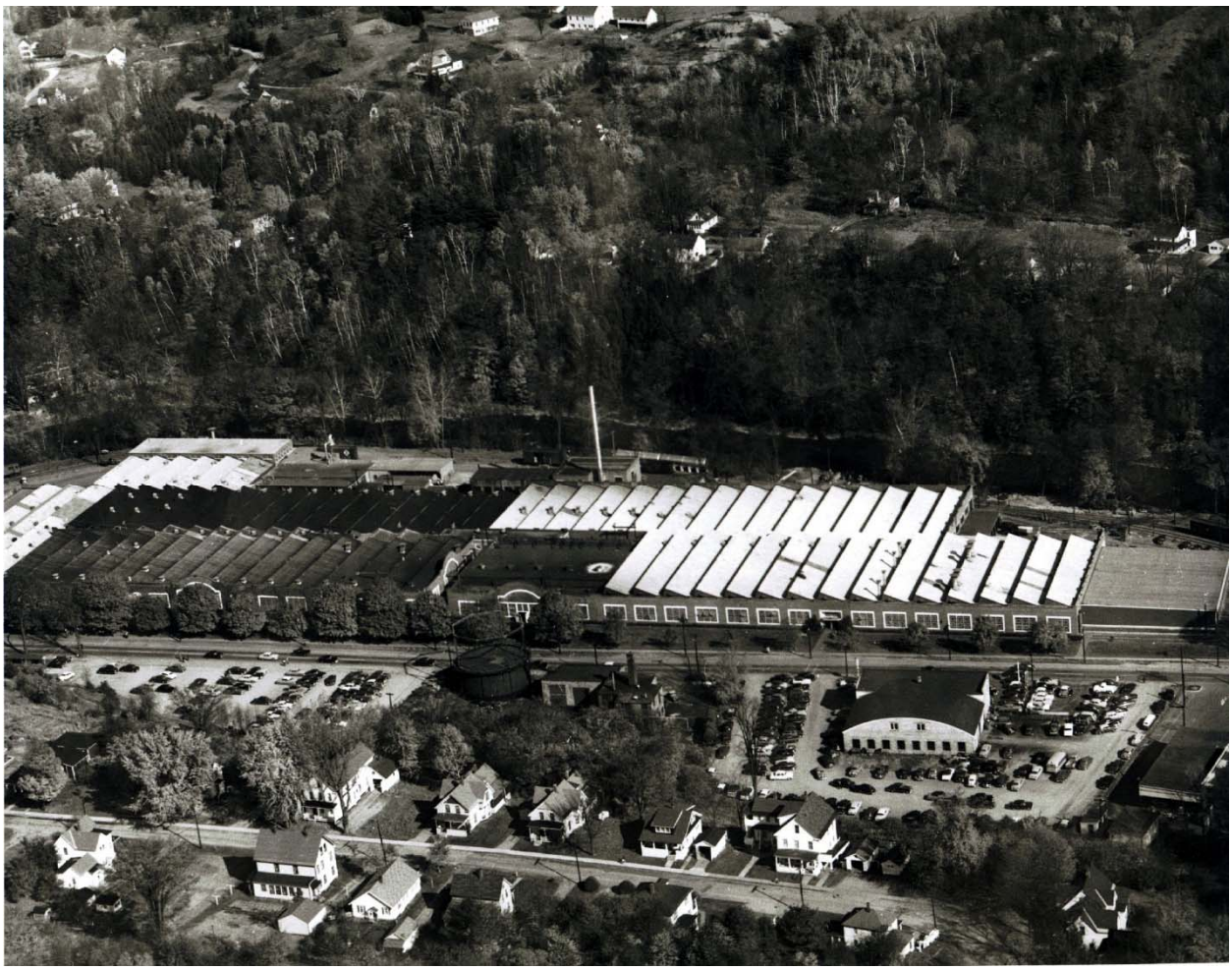
Partial Corrective Action Plan - Jones and Lamson Property, 160 Clinton Street, Springfield, Vermont, SMS#77-0122
November 5, 2018



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Title and Approval Page

Document Title
Partial Corrective Action Plan - Jones and Lamson Property, 160 Clinton Street, Springfield, Vermont, SMS#77-0122, August 9, 2018

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I certify under penalty of perjury that I am an environmental professional and that all content contained within this deliverable is to the best of my knowledge true and correct.

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By my signature, as a Vermont Registered Engineer that I hereby certify that I have reviewed this document.

_____

Signature Date

Executive Summary

Stone Environmental has prepared the following Partial Corrective Action Plan (Partial CAP) on behalf of the Springfield Regional Development Corporation (SRDC) to address contaminated media, including soil and concrete for the former Jones and Lamson (J&L) property located at 160 Clinton Street in Springfield, Vermont (the Site; Figure 1). The Partial CAP was developed to be protective of following near-term Site improvements:

- Demolition of the Site building;
- Interim stabilization of the Site to prevent exposure to contaminated soils and concrete; and
- Construction of a recreation path along the eastern portion of the Site.

The elements of the Partial CAP have been designed to be protective of human health and the environment during demolition activities and the interim period prior to development of the Site. Long term remedial actions will be necessary to allow for full redevelopment of the Site and will be presented within a Final CAP once redevelopment plans are further vetted.

The Site and surrounding properties have been in industrial use since at least the early 1900's. The J&L Plant #1 building terminated operations in 1985. Between the early 1900's and 1985, plant operations included metal grinding, machining, planing, heat treatment, assembly, and painting to aid in the manufacturing of metal lathes and optical compactors. As a result of manufacturing processes, various hazardous materials were released at the Site; including polychlorinated biphenyl (PCB) contaminated cutting fluids, bunker fuel oil, various other petroleum fuels and distillates, metals, and chlorinated solvents. In addition to manufacturing processes that resulted in releases to the Site, grinding swarf was disposed of on-Site along the bank of the Black River. Metal shavings produced during manufacturing processes were collected and transferred to the chip shed where PCB contaminated cutting oil was drained onto the underlying ground surface.

Remedial actions completed to date include:

1) Cleaning and filling in place a 70,000-gallon underground storage tank used to store heating fuel.
2) Asbestos abatement within the former pump house, exterior areas surrounding the boiler house, and a portion of the former machine shop
3) Demolition and disposal of the former Chip Shed.
4) Targeted excavations and disposal of:
    a. A former solid waste disposal area (SWDA)
    b. Soils beneath the former chip shed
    c. Swarf-contaminated soils along the western bank of the Black River.
    d. Transformer Court Yard #5

Based on previous environmental investigations and the proposed redevelopment plan, corrective actions are necessary at the Site to prevent exposure to PCB contaminated soil and concrete for Site users during the proposed demolition and construction projects, which are tentatively scheduled for early 2019. The recommended interim remedial actions include:

- Implementing erosion control measurements;
- Implementing a soil management plan;
- Installation of engineered barriers to prevent direct contact with contaminated media, including soil and concrete. Engineered barriers include soil and asphalt caps, fencing, and signs.

Due to restrictions in access, limited area, and step-wise nature of the near-term redevelopment the following bullets present the general timing of implementation:

1. Install fence along Clinton Street to prevent Site access during demolition.
2. Demolition of Site building;
3. Installation of fencing and interim barriers; and
4. Construction of bike path.

Future redevelopment of the Site conceptually includes creation of a new access from Clinton Street and construction of two stand-alone buildings for commercial/light industrial use, and associated parking and infrastructure. Elements of necessary remedial actions to support full redevelopment will be provided in the Final CAP. Elements to be addressed in the Final CAP include:

- Surface soils outside the extent of engineered bike path.
- Sub-surface soils.
- Soil gas.
- Groundwater.
- Concrete remaining on Site with PCBs greater than 1.0 mg/Kg.

Interim Corrective Action Plan - Jones and Lamson Property, 160 Clinton Street, Springfield, Vermont, SMS#77-0122

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1. Introduction

Stone Environmental has prepared the Partial Corrective Action Plan (CAP) on behalf of the Springfield Regional Development Corporation (SRDC) to address contaminated media, including soil and concrete for the property located at 160 Clinton Street in Springfield, Vermont (the Site; Figure 1). Corrective actions are necessary at the Site to prevent exposure to contaminated soil and concrete for Site users during proposed demolition and construction projects, which are tentatively scheduled for 2019. The Partial CAP will mitigate exposure risk to Site users during demolition activities and during the interim period prior to development of the Site. A Final CAP that includes other remedial activities to allow for redevelopment of the Site is required. -

1.1. Site Description

Plant #1 of the former Jones and Lamson (J&L) facility comprises a 270,000-square foot (ft^2) former machine manufacturing facility and several outbuildings situated on a 16.9-acre parcel located at 160 Clinton Street in Springfield, Vermont, Windsor County (the Site or Property). Clinton Street defines the western property boundary while the Black River lies to the east of the Site. The northern property boundary is formed by Bridge Street, with the Edgar May Health and Recreation Center and former Springfield Foundry (former J&L Plant #4) located further to the north. Artisan Surfaces, manufacturers of stone and artificial countertops, occupies the southernmost portion of the former J&L Plant #1 building within a currently separate parcel. Further to the south is the Robert S. Jones Center, formerly referred to as J&L Plant #2.

A narrow greenbelt containing grass and a row of street trees separates the western side of the Site building from Clinton Street. An asphalt parking lot is located immediately north of the Site building and south of bridge Street. The parking lot is currently used by patrons of the Edgar May Health and Recreation Center to the north of the Site. A gated gravel drive accesses the eastern area of the Site from the asphalt parking lot in the north and the Artisan Surfaces property to the south. The eastern exterior area of the Site is gravel and brush and generally flat, except for the steeply sloping river bank at the easternmost extent of the Property. Several small outbuildings are located east of the main facility.

According to previous historical accounts (e.g., Dufresne-Henry, 1989) the Site is constructed on a former riparian wetland that was backfilled with approximately ten feet of material. Fill material reportedly consists of sand, gravel, and foundry waste. Except for the portion that is occupied by Artisan Surfaces, the Site building is currently vacant and is not served by any utilities. The greenbelt west of the building is maintained by the Town of Springfield; however, the exterior areas east of the Site building are not regularly maintained and are overgrown. The Town of Springfield sewer main traverses the eastern portion of the Site. Two combined sewer overflows (CSOs) are located along the sewer main, discharging to the Black River.

The Site is situated adjacent to the following hazardous waste sites:

- 140 Clinton Street; Edgar May Health and Recreation Center (formerly J&L Plant #4), SMS # 2009-3906;

- 197 Clinton Street; Irving filling station/Jake's Market (formerly Springfield gas, a manufactured gas plant), SMS # 98-2399;
- 200 Clinton Street: Artisan Surfaces (the southern extent of the J&L Plant #1 building), SMS # 2013-4373;
- 201 Clinton Street; Springfield Police Department (formerly Lucas Industries, a car dealership), SMS # 2006-3608; and
- 257 Clinton Street; Former Bryant Grinder machining plant, SMS #77-0123;

The Lucas Industries site has been demonstrated to have been impacted by contaminants from the adjacent Go-Go Gas property but has received a Certificate of Completion through the VTDEC Brownfield Response Program. The remaining adjacent hazardous waste sites are under active VT DEC management.

1.2. Proposed Site Stabilization and Redevelopment Plan

Near term redevelopment includes the demolition of Plant #1 of the former J&L facility apart from 14,000-square feet of the northern portion of the building, as shown on Figure 2. Demolition will include the installation of a temporary work-surface barrier between the building slab and superstructure, removal of the building as asbestos bulk waste, targeted removal of contaminated concrete and steel columns, and installation of an interim engineered soil barrier with fencing and signage.

A bike path is to be constructed along the eastern portion of the Site bordering the Black River. The construction of the bike path will include the installation of engineered barriers and management of excess contaminated soils.

Future redevelopment of the Site conceptually includes creation of a new access from Clinton Street and construction of two stand-alone buildings for commercial/light industrial use, and associated parking and infrastructure. Elements of necessary remedial actions to support full redevelopment will be provided in the Final CAP. Elements to be addressed in the Final CAP may include:

- Surface soils outside the extent of engineered bike path.
- Sub-surface soils.
- Soil gas.
- Groundwater.
- Concrete remaining on Site with PCBs greater than 1.0 mg/Kg.

1.3. Previous Environmental Investigation

Extensive investigations have occurred at the Site since 1989, however, discussion in this section will be limited to media associated with the proposed redevelopment plan. A summary of previous studies pertaining to impacted building materials and Site soils is provided below.

1.3.1. Site Assessment, Dufresne-Henry, March 1989

Dufresne-Henry performed a Site Assessment of the J&L Plant #1 and Plant #2 properties in 1988 and 1989, on behalf of J&L. Key elements of the Site Assessment included the review of historical information, including interviews, a Site inspection, monitoring well installation, and groundwater and surface water sampling and analysis for volatile organic compounds (VOCs). Multiple environmental concerns were identified across the property including soil contamination associated with the 70,000-gallon bunker oil underground storage tank (UST) located directly east of the building.

1.3.2. File Review and Phase II Site Assessment, Griffin International, 2004

Based on results from previous investigations identified during the file review completed by Griffin International (Griffin), polychlorinated biphenyls (PCBs) were present in four of the five transformer courtyards that were sampled. Griffin completed additional soil samples within the five transformer yards to confirm the presence of PCBs in soils. Based on analytical results Griffin concluded that the transformer courtyards posed no risk while the Site was unoccupied but recommended the removal of PCB contaminated soils from courtyards 1, 2, and 3. Due to the presence of concrete in courtyards 4 and 5, Griffin concluded there was no risk to potential Site users.

1.3.3. Subsurface Environmental Investigation, Environmental Compliance Services, Inc., 2006

Environmental Compliance Services (ECS) completed soil borings and test pits, among other investigations with the purpose of collecting data to aid in the preparation of a CAP. Sampling occurred near the heat treatment area, however, since these soils borings were advanced below the slab the results will not be discussed since the removal of the building slab is not part of the proposed interim scope. Future redevelopment, specifically the installation of the drive from Clinton Street through the Site and installation of future foundation walls, will need to consider the condition of sub-slab soils along the proposed alignment – these activities will be included within the Final CAP.

Additional soil investigation was completed near the former 70,000-gallon bunker oil UST to the east of the building and along the bank of the Black River. Soil borings and test pits from these areas identified PCB, chlorinated VOC, heavy metal, and total petroleum hydrocarbon (TPH) contamination in both shallow and deep soil samples. [Note: this Partial CAP will address surface soil contamination via fencing; subsurface soils will not be addressed.]

1.3.4. Corrective Action Plan, The Johnson Company, Inc., January 2008

The Johnson Company (JCO) developed a CAP in 2008 to minimize the risk to human health caused by Site contamination and to reduce contaminant concentrations in soil and concrete below thresholds set forth in the Environmental Protection Agency's (EPAs) Toxic Substances Control Act (TSCA) regulations. Concrete samples were collected in in two phases to assess PCB contamination to the concrete slab within the building. Phase I of the concrete sampling was completed as an initial screening to determine the areas of widespread PCB spills or releases. Phase I samples were taken at 50-foot intervals and were collected as bulk and wipe samples. Phase II sample locations were selected based on the Phase I results to better delineate impacts to the concrete slab. The Phase I and Phase II sampling alongside previous investigations identified the following areas of concern:

- Approximately 64,020-square feet of PCB contaminated concrete throughout the Site;
  - Approximately 61,845-square feet of concrete is impacted with PCB concentrations greater than 1 part per million (ppm) but less than 10 ppm. The largest impact areas are from rooms where PCB oils were being used, however, some impacts were outside these work areas and were likely the result of oils being tracked across the building on worker shoes. Approximately 190-square feet of concrete in the Northern Transformer House were impacted with PCBs.
  - Approximately 1,645-square feet of concrete is impacted with PCB concentrations greater than 10 ppm but less than 50 ppm. The largest impact areas are from rooms where PCB oils were being used. Concrete from Transformer Courtyard 4 (CY-4) and the chip shed, 870-square feet and 110-square feet, respectively, contained PCBs at concentration greater than 10 ppm but less than 50 ppm.
  - Approximately 530-square feet of concrete is impacted with PCB concentrations greater than 50 ppm. The largest impact areas are from rooms where PCB oils were being used, however, a 100-

square foot section of concrete within the chip shed contains PCBs at concentrations greater than 50 ppm.

- Reportedly, 1,025 CY of PCB contaminated soil is present in select areas of the Site at concentrations ranging from 1.07 ppm to 170 ppm.
  - Soil from four of the five Transformer Courtyards contained PCB contamination. Transformer Courtyard 1 (CY-1) contains 51 CY, Transformer Courtyard 2 (CY-2) contained 76 CY, Transformer Courtyard 3 (CY-3) contained 92 CY, and Transformer Courtyard 5 (CY-5) contained 36 CY of PCB contaminated soil. The outside transformer area also contains approximately 1 CY of PCB impacted soil.
  - Shallow soils from the chip shed area and the solid waste disposal area (SWDA) contain 275 CY and 450 CY of PCB contaminated soils, respectively. An additional 45 CY of soil containing elevated levels of PCBs and iron were present east of the SWDA.

1.3.5. Remedial Action Report, Nobis Engineering, Inc., March 2014

In August and September of 2013, Tantara with Nobis Engineering as a subcontractor completed excavation, transportation, and disposal of contaminated materials from the grinding swarf area, SWDA, transformer courtyards (CY-5, the northern and southern transformer buildings, and the outside transformer area), and the chip shed. Figure 3 presents the location of these areas of concern, as presented within the 2008 CAP. The following provides a summary of activities completed at each area:

- **Grinding Swarf:** Initial estimates determined 11 CY of grinding swarf was present along the bank of the Black River, however, during remedial excavations the encountered grinding swarf area was larger and at a greater depth than initially anticipated. Attempts were made using a hand auger to delineate the extents of the grinding swarf, however, due to the nature of the swarf, the hand auger could not delineate the vertical extents of the swarf. Soil excavation confirmation samples and samples collected from the hand auger investigation detected PCBs at concentrations between 24.5 ppm and 1,270 ppm. The swarf material also contained elevated levels of chromium (700 ppm) and arsenic (250 ppm). Approximately 88 CY of swarf material was excavated before halting excavations, leaving an unknown volume of swarf material along the river bank.
- **SWDA:** A total of 842 tons of soil was removed from the SWDA. Confirmation samples were collected following excavations within the SWDA and identified PCB concentrations ranging between 0.11 ppm and 219 ppm. Soils with elevated PCB concentrations, between 0.11 and 219 ppm were left in place within the SWDA. The eastern wall of the SWDA and the base and southern sidewall of the southern portion of the SWDA were lined with polyethylene sheeting prior to backfilling the excavations.
- **Transformer Areas:** The PCB contaminated concrete slab from CY-5, measuring 390 square feet was removed and disposed of. In addition, the top foot of soil underlying the concrete slab of CY-5 was removed. Confirmation samples of the remaining underlying soils ranged from 0.11 ppm to 1.19 ppm. Due to the elevated PCB concentrations a soil cap was installed within CY-5. The northern transformer house was demolished and PCB contaminated concrete and debris was disposed of off Site. Confirmation sample results collected from soils underlying the northern transformer building indicated that PCBs were not detected at or above 0.11 ppm. Stained soils from the top two feet of the former outdoor transformer storage area were excavated and disposed of. Confirmation sampling of the underlying soils indicated that PCBs were not detected at or above 0.11 ppm. In total, 29 tons of concrete and soil were disposed of at the Coventry, Vermont Landfill.
- **Chip Shed:** The chip shed was demolished and PCB contaminated wood and concrete was disposed of at the Coventry, Vermont landfill, except for materials that had been identified as containing PCBs greater than 50 ppm, which were disposed of at the Waste Management facility in Model City, New

York. Following the removal of the chip shed, an excavation was completed to four feet below the existing grade to dispose of oil impacted soils that contained PCBs greater than 50 ppm. Approximately 360 tons of PCB impacted soil was disposed of at the Model City landfill in New York. Confirmation samples collected following the excavation identified PCBs ranging from 0.12 to 8.9 ppm.

1.3.6. Swarf Delineation Soil Boring Program, Stone, 2015

To evaluate whether swarf soils generated during remedial activities constituted RCRA wastes, Stone performed five soil borings in the vicinity of the chromium/arsenic hot spot. Samples were analyzed first for total RCRA 8 metals. The sample with the highest total metals concentration was selected and analyzed for TCLP metals analysis. Although barium, cadmium, and lead were detectable within leachate, no metal concentration exceeded the RCRA threshold. As such, further delineation of metals in soil was not performed.

To assess the aerial and vertical extent of PCB contaminated soil and swarf material, Stone advanced 75 soil borings between July 2 and July 9, 2015. Borings were oriented on a 10 by 10-foot grid and advanced to a depth of up to 18.9 feet below ground surface (bgs). Soil borings situated along and to the west of the top of the riverbank were performed using a track-mounted Geoprobe 6610 DT drill rig pushing 5-foot MC5 soil coring tooling. Soil borings located along the river bank were performed using 3-foot Geoprobe MC5 tooling and a pneumatic jackhammer. Soil cores were logged for the presence/absence and thickness of swarf, color, moisture content and texture. Soil samples were collected, composited and analyzed for PCBs. A total of fourteen composite and fourteen discrete soil samples were submitted for analyses, originally. Subsequently, additional discrete parent samples were analyzed to better define exceedances of the TSCA "walk-away" criteria (1.0 mg/Kg) and Vermont Soil Screening Levels for residential and industrial properties.

Strata identified during the soil characterization effort included coarse gravelly sand fill, swarf, native sand, native sand and gravel, and silty clay. Soil logging of the 75 soil cores collected for the Site characterization indicated that the swarf is 1) very recognizable, 2) ranges from not present up to four feet thick in areas, and 3) encompasses a much larger footprint than previous environmental investigations had suggested.

During the completion of soil borings, petroleum stained and saturated native sand was found between 1.0 and 14 feet below ground surface and below the swarf unit. In most borings where present, the petroleum stained sands and swarf were not co-located within the same strata of the boring, however in select borings (e.g., SB-D5) petroleum was found to be present in overlying fill, swarf, and sand and gravel strata. Based on visual and olfactory evidence, as well as a lack of PCBs within this petroleum, Stone presumed this oil is derived from the former bunker fuel oil underground storage tank.

1.3.7. Black River Sediment Assessment, November 2015

On November 23, 2015, Stone staff performed reconnaissance of sediments along the western bank of the Black River adjacent the Site. The objective of this assessment was to delineate where along the bank free phase oil was present and what is the nature of the oil. Using hand tools, Stone dug approximately 0.5 feet into shallow sediments for the presence/absence of sheen at five-foot increments along the bank for 235 feet of the riverbank. Oil was observed in 20 of the 47 investigation locations – representing a total length of approximately 100 feet of riverbank with oil contaminated sediments. In many cases, swarf was also found within oil contaminated sediments. Samples collected of sediments were found to contain elevated concentrations of PCBs and found to most closely resemble hydraulic or motor oil.

1.3.8. EPA Removal Program Preliminary Assessment/Site Investigation

In June 2016 U.S. Environmental Protection Agency (EPA) Region I On-Scene Coordinator (OSC) Richard Haworth and Weston Solutions, Inc. (WESTON), Superfund Technical Assessment and Response Team IV

(START) conducted sampling activities at the Site as part of a Preliminary Assessment/Site Investigation. START collected surface soil, subsurface soil/sediment, Oil Identification (ID), and bulk ACM samples. Soil samples were collected from 0 to 3 inches below ground surface (bgs) at nine locations using disposable scoops, including four discrete locations and five composite locations. Sediment samples were collected from 0 to 6 inches bgs at nine locations along the river's edge using hand augers. Sediment samples were collected from 0 to 2 feet bgs (nominal) from 33 locations in the river bed using manual slam bar techniques and Geoprobe tooling. A total of 54 soil/sediment samples were delivered to EPA's Portable High-Throughput Integrated Laboratory Identification System (PHILIS) Laboratory for PCB analysis, including three duplicates. In addition, 39 soil/sediment samples were delivered to EPA's Office of Environmental Measurement and Evaluation (OEME) New England Regional Laboratory (NERL) for metals analysis, including three duplicates, and 14 soil/sediment samples were delivered to NERL for SVOC analysis, including one duplicate. There were six samples submitted to NERL for Oil ID analysis, including three sediment, two water/oil, and one oil sample. Additionally, nine samples submitted for metals and/or SVOC analyses had an aliquot collected from the sample and analyzed for Oil ID. START personnel collected 25 bulk samples from the building and submitted them to NERL for asbestos analysis. START also submitted two surface water samples and three pore water samples (including one duplicate) for PCB, metals, and SVOC analyses. Asbestos, PCBs, and oils were detected.

On 7 November 2016, EPA START mobilized to the Site to conduct additional surface/subsurface soil sampling and bulk asbestos-containing material (ACM) sampling activities at the Site to further define the extent of contamination and to determine if further actions, including removal activities, are warranted. These activities supplemented the sampling that was conducted in June 2016. Six soil sample locations were selected encircling an area identified by previous sampling as being contaminated with PCBs. Unless refusal was encountered, START personnel collected one grab surface soil sample at a depth of 0 to 3 inches bgs, and two grab subsurface soil samples at nominal depths of 1 foot and 2 feet bgs, respectively, from each sample location using hand augers. START personnel collected six surface soil and 11 subsurface soil samples, including one duplicate sample. Refusal was encountered at one location in the form of granite paving stones at a depth of approximately 3 inches bgs, so no subsurface soil samples were collected at this location.

Soil samples were classified according to color and grain size. START personnel delivered all soil to NERL for PCB analyses. Two PCB Aroclors were detected at the following maximum concentrations: Aroclor 1254 at 0.15 milligrams per kilogram (mg/Kg); and Aroclor 1262 at 0.26 mg/Kg. No PCBs were detected above EPA Removal Management Levels (RMLs) of 23.0 mg/Kg for residential or of 94 mg/Kg for industrial soils which were considered the action levels for the EPA Removal Action.

1.3.9. Weston Solutions Structural Evaluation

Weston Solution, Inc. (WESTON) performed a structural condition assessment of the buildings at the Site on December 7 and 8, 2016. The purpose of this assessment was to evaluate the structural condition of the 270,000-square-foot Manufacturing Building, plus several outbuildings: Boiler Room, Power House, Pump House, and Building Z.

Because of the extent of the severe deterioration of the thin concrete roof panels, not only is entry of the Manufacturing Building unsafe, working around the building also presents safety hazards. Several precautions were recommended regarding performing outdoor activities between the buildings and river. Although passenger vehicles and heavy equipment was considered safe to drive along the eastern portion of the site, it was recommended to keep vehicular speed slow to reduce vibration. Vibration from equipment and vehicles or actual contact with the buildings could cause additional structural damage. Site personnel should

keep a safe distance away from the building so as not to be in the line of any loose masonry or collapsing parapet that may fall from the building.

1.3.10. NAPL Delineation and River Assessment, Stone 2017-2018

On November 29 and November 30, 2017, Stone completed an environmental assessment of the Black River in accordance to the work plan titled, *Work Plan and Site-Specific Quality Assurance Project Plan, NAPL Delineation, Jones & Lamson Property, 160 Clinton Street, Springfield, Vermont, SMS# 77-0122* and dated September 28, 2017. The River assessment was designed to evaluate whether dissolved phase contamination (primarily naphthalene) was impacting the Black River. Six pore water samples were collected and analyzed for VOCs from mini-piezometers locations that identified the River to be gaining relative to groundwater. Petroleum related VOCs were identified in some pore water samples; however, the petroleum related VOCs were below the Vermont Groundwater Enforcement Standards (VGES). Chlorinated VOCs were detected at levels exceeding the VGES. 1,1-Dichlorethane (1,1-DCA) was detected at a maximum concentration of 432 micrograms per liter (μg/L) from R6-A, trichloroethylene (TCE) had a maximum concentration of 33.1 μg/L from R4-A, and vinyl chloride had a maximum concentration of 2.29 μg/L from R5-A. In addition to the detections of VOCs in pore water samples, sheens were identified when sediment was disturbed as part of the river assessment.

Between January 8 and January 11, 2018, the extent of free-phase NAPL released from the former 70,000-gallon bunker oil underground storage tank (UST) was delineated by Stone and Dakota Technologies using Tar-specific Green Optical Screening Tool (TarGOST). NAPL contamination was typically identified between 11 and 15-feet below ground surface and covered an area down gradient of this UST of approximately 18,000-square feet. Confirmation soil samples collected during the TarGOST sampling detected elevated PCB and extractable petroleum hydrocarbon (EPH) concentrations. Two of the eight confirmation samples detected PCBs at concentrations greater than 0.54 ppm; the maximum PCB concentration was 32 ppm (SB-Y08-13.5). Elevated EPH concentrations were identified from six of the eight confirmation samples collected during the TarGOST sampling. The approximate aerial extent of PCB contamination within the LNAPL plume is 5,000-square feet. Results of the river assessment and fuel oil delineation are presented in the report titled "NAPL Delineation Site Investigation Report, Former Jones and Lamson Property, 160 Clinton Street, Springfield, Vermont" dated May 4, 2018.

2. Conceptual Site Model

The following Conceptual Site Model (CSM) provides a set of working hypotheses that describe key aspects of the Site. As with any hypothesis, the CSM will require additional testing to arrive at the desired level of confidence. The CSM includes a discussion of the physical, geologic, and hydraulic attributes of the Site and surrounding area, how chemicals were released at the Site, their transport pathways, fate mechanisms, and potential routes of exposure to ecological and human receptors. The CSM provides the context from which the CAP is developed and a framework to make sound Site management decisions.

2.1. Geology and Hydrogeology

The property is reportedly located on a former swamp, and the subsurface of the Site contains up to ten feet of fill material. A more accurate depiction of the geologic setting would be of an alluvial setting with riparian buffer that, prior to human alterations, was periodically flooded. Strata observed at the site can be described as a series of upward fining stratigraphic sequences. The sequence begins with channel lag deposits, consisting of poorly sorted coarser materials over the underlying silt strata or bedrock. Above the channel lag deposits, we expect that coarse materials are overlain and possibly interbedded with cross-bedding of sand predominantly in the coarse to medium range, followed by sand within horizontal laminae and climbing ripples. The final portion of the sequence is a silty mud layer, resulting from slack water events (over bank deposits). This sequence – channel lag through silty over bank deposits –will be repeated as the channel meanders and additional point bar/cut bank sequences occur. These alluvial deposits overlie glacio-lacustrine fine-grained silty sands, silt, and sandy clay deposits. The top of the dense silty soil layer has not been fully defined, but appears to generally slope down to the east, with some local variations.

The recent fill material consists of sand, gravel, and some black sands that appear to be foundry waste. Low lying areas, including below the Site, were infilled with fill soils both to initially develop the property and to dispose of wastes generated on Site (e.g., swarf) and nearby (e.g., foundry wastes).

Based on previous environmental investigation, the geology of the Site includes 2 to 8 feet of artificial fill beneath the buildings including medium to coarse sand, gravel, and concrete debris. The natural geologic materials encountered during subsurface investigations include layered deposits of sand, silt, and gravel interpreted as river sequence deposits. Occasional occurrences of peat have been observed sporadically and are indicative of localized backwater deposits (river oxbows). Previous work has indicated that river sequence deposits are underlain by silt and clay lacustrine sediments that were deposited while the area was covered by glacial Lake Hitchcock following the retreat of glacial ice from this portion of Vermont (~12,000 years ago) through approximately 8,000 years ago. Some silty sand and clay was noted at the depth of 14 feet below ground surface (bgs) in one boring within the study area, confirming the lacustrine period of the depositional history. According to work performed by Johnson Company in 2008 to define the extent of coal tar NAPL contamination related to the Bradford Oil site located at 197 Clinton Street, the lacustrine silt-clay unit has been eroded in some areas of the Site due to meanders of the Black River channel, leaving in its place coarse channel bottom deposits (JCO, 2008). One such area where this is believed to occur is in the area immediately south and west of the former chip shed. This channel area is bound further to the west by a reported ridge

within the lacustrine unit occurring approximately in a north-south trend in the middle of the former J&L building.

Based on previous environmental investigations and ongoing monitoring performed for the Bradford Oil site, the direction of groundwater flow is generally east toward the Black River, immediately adjacent the Site. Preferential flow appears to follow the path of the former river channels resulting in local variations in the groundwater flow direction, with some groundwater flowing northeast, and some southeast. Depths to groundwater range between six feet below ground surface in the west to 23 feet below the center of the Jones & Lamson building.

2.2. Release Mechanisms

The Site and surrounding properties have been in industrial use since at least the early 1900's. The J&L Plant #1 building ended operations in 1985. Between the early 1900's and 1985, plant operations included metal grinding, planing, heat treatment, assembly, and painting to aid in the manufacturing of metal lathes and optical compactors. As a result of manufacturing processes, various hazardous materials were released at the Site including PCB contaminated cutting fluids, bunker fuel oil, various other petroleum fuels and distillates, metals, and chlorinated solvents. In addition to manufacturing processes that resulted in releases to the Site, swarf coated with PCB contaminated cutting oil was disposed of on-Site along the bank of the Black River. Metal shavings coated with PCB contaminated cutting oil produced during manufacturing processes were collected and transferred to the chip shed where PCB contaminated cutting oil drained into the underlying ground surface.

2.3. Contaminant Distribution, Fate, and Transport

Based on the operational history of the Site, surrounding known hazardous waste sites, and previous Site investigations, contaminants of concern (COCs) include chlorinated and petroleum-based solvents, metals, PCBs, and PAHs from coal tar. The following provides a summary of contaminant distribution by media.

2.3.1. Impacts to Groundwater

Once discharged to the ground surface, PCB-contaminated cutting fluids migrated downward through the vadose zone until they encountered the saturated zone. Here, the cutting fluids co-mingled with the central portion of the bunker oil LNAPL plume released from the Site UST.

Select COCs are present in both the aqueous and non-aqueous phases throughout the Site. Sources for groundwater impacts have originated on-Site likely from leaking tanks and spills as well as from off-Site sources, specifically the former manufactured gas plant located to the west of the Site. No on-Site water supply wells are in use, so direct exposure risk to contaminated groundwater currently presents minimal risk to Site users. However, current data suggests there is the potential for impacted groundwater to be leaving the Site and potentially affecting sensitive off-Site receptors.

Chlorinated solvents, including tetrachloroethylene (PCE), trichloroethylene (TCE), and their breakdown products are present at elevated concentrations in groundwater near the heat treatment and chlorinated solvent storage area (Figure 3). The highest concentrations of chlorinated volatile organic compounds (CVOCs) were identified within the footprint of the building in the area known as the Solvent Recycling and Storage Area which is upgradient of the former 70,000-gallon bunker oil UST and Chip Shed, indicating a potential source area for the chlorinated solvent contaminant plume in this area. PCE was detected at a concentration of 4,700 micrograms per liter (μg/L) and TCE was detected at a concentration of 1,900 μg/L. Concentrations of PCE suggest there is likely a separate dense non-aqueous phase liquid (DNAPL) present

in the subsurface[1]. Groundwater below the building does not present a direct exposure risk to Site users, however, the potential for a DNAPL in the subsurface can serve as an ongoing source for dissolved phase CVOCs. The Black River is approximately 200-feet down gradient of the likely chlorinated solvent source area (JCO-SS) and is a sensitive receptor that has been impacted by the dissolved phase chlorinated plume. Preliminary results following an assessment of the western bank of the Black River indicated that pore water below the bottom of the River was impacted by the CVOCs. The highest CVOC concentration detected during the Black River assessment identified TCE in pore water at a concentration of 33.1 μg/L from sample location RA-4 (Figure 3). Further assessment of CVOCs in Site groundwater, porewater, and surface is necessary to discern whether the discharge of CVOCs in to the Black River has resulted in an adverse effect.

Approximately 1-foot of a light non-aqueous phase liquid (LNAPL) was identified in the monitoring well SB-2V located adjacent to the AST vault located immediately north of Transformer Courtyard 2 (Figure 2). Previous investigations noted that initial groundwater samples collected from SB-2V contained trace levels of TPH and that the NAPL likely did not contain PCBs, however, no sampling was completed to confirm the absence of PCBs. No oil impacts were identified at two wells downgradient of SB-2V, thus it was assumed LNAPL contamination was limited to an estimated 1,000-square foot area around SB-2V.

Approximately 2.5-feet of LNAPL was identified in monitoring well HT-6 (Figure 2). Previous investigations do not note the exact source of the LNAPL, however, coal tar released from the Former Springfield Gas Property is believed to have resulted in the presence of LNAPL and DNAPL near the Heat Treatment Area in the western portion of the building (Figure 2).

Historical releases of bunker oil from the 70,000-gallon UST have resulted in the presence of LNAPL in soil and groundwater downgradient of this UST. In January 2018, TarGOST vertical profiling was completed to assess the extent of NAPL contamination associated with this UST. TarGOST screening identified the areal extent of the NAPL to be approximately 18,000-square feet and was typically identified between 11 and 15-feet below ground surface. TarGOST was used to generate a 3-dimensional figure in Environmental Visualization Software (EVS) showing the estimated extent of NAPL in the subsurface – see Figures 4 through 7 of the 2018 NAPL Site Investigation Report (Stone, 2018). Based on the TarGOST data and EVS model, there is an estimated 2,700-CY of NAPL contaminated soil within the subsurface. Samples of the NAPL collected from recovery well RW-1 identified PCB concentrations of 60 ppm. The source of PCB contamination is believed to be comingling of the bunker oil plume with cutting oils from the former chip shed. Previous investigation also identified NAPL stained sediment along the western bank of the Black River, indicating that NAPL is likely periodically discharging into the river.

2.3.2. Impacts to Concrete

The use and storage of PCB containing transformers in addition to the use of PCB contaminated cutting oils have resulted in an unknown quantity of spills and releases across the Site. Previous Site investigation identified approximately 52,910-square feet of PCB contaminated concrete. Table 1, below, provides a summary of PCB impacts to concrete.

[1] DNAPL is likely present if groundwater concentrations exceed one percent of the effective solubility of a chemical. Approximate effective solubility of PCE is approximately200 mg/L, therefore, DNAPL is likely present at 2,000μg/L. (US EPA 2004)

Table 1: Distribution of PCB Contamination in Concrete

Concentration Range	Location*	Impacted Area (ft^2)
>1 ppm but <10 ppm	Transformer Courtyard 1	560
	Main Building Floor (Manufacturing Areas)	50,000
>10 ppm but <50 ppm	Main Building Floor (West/South of CY-3)	1,600
>50 ppm	Main Building Floor (West of CY-3)	750

Notes: *Locations correspond to Areas of Concern presented on Figure 3;

PCBs currently present little exposure risk to Site users, since the building is vacant and not in use. However, based on proposed redevelopment plans, PCBs in concrete can present a direct exposure risk to Site users through direct contact or inhalation. Material falling on concrete during building demolition has the potential to break or chip off pieces of concrete and generate dust that could be contain PCBs. Additionally, PCBs can volatilize in air; should the building slab be used during future redevelopment following building demolition, additional corrective actions beyond those specified in this CAP, may be required to prevent exposure to PCBs in the air. Any remedial activities to address PCBs in concrete will be addressed in a Final CAP.

2.3.3. Impacts to Soil

Known COCs in Site soil include PCBs, petroleum NAPL, metals, and coal tar. Contamination is due to spills and releases from manufacturing processes and transformers, migration from the Springfield Gas Company site, as well as releases of unknown volumes from ASTs and USTs. Partial remediation of the SWDA occurred in 2013, resulting in the removal of soils where chlorinated solvents were previously identified. Site-wide soils have not been fully assessed.

Soil beneath the building slab in areas where PCBs were identified in concrete remain unassessed. Preferential pathways, such as cracks within the slab or leaks within the floor drain system, may accelerate the migration of these materials to the subsurface. Future redevelopment elements that include removal of the slab, such as the Clinton Street driveway or future excavations for foundations, may encounter contaminated sub-slab soils. This CAP does not address contamination below the slab or subsurface soil contamination.

Table 2, below, provides a summary of PCB impacts to Site soils.

Table 2: Distribution of PCB Contamination in Site Soils

Concentration Range (ppm)	Location*	Impacted Area (ft^2)	Estimated Depth of Contamination (ft)	Estimated Volume (CY)
1.14 to 8.24	Transformer Courtyard 1 (CY-1)	560	1	21
1.07 to 27.1	Transformer Courtyard 2 (CY-2)	660	1	24
1.00 to 4.37	Transformer Courtyard 3 (CY-3)	790	1	29
0.11 to 1.19***	Transformer Courtyard 5 (CY-5)**	Remedial excavations completed, and soil cap installed		
Less than 0.11	Northern Transformer House**	Remediation Complete		
Less than 50	Chip Shed**	8,000	15	1,300
219	Solid Waste Disposal Area (Shallow Soil)**	400	4.0	60
Max of 3.8	Swarf Area	Remediation Completed in 2017		

Notes: *Locations correspond to Areas of Concern presented on Figure 3; **Indicates areas where remediation has occurred and PCB contaminated Soil was removed.

Remediation, which included demolition of buildings and removal of PCB contaminated soil and concrete, was completed at CY-5, the chip shed, and the SWDA in 2013 by Tantra and Nobis (see Figure 2). Approximately 1,000 CY of PCB impacted material was disposed of during remedial activities, however, post

excavation confirmation sampling identified elevated PCB concentrations at each location. Confirmation samples from the SWDA identified PCBs at concentrations ranging from 0.11 ppm to 219 ppm. The highest detection of PCBs, 219 ppm, was identified approximately 4-feet below grade from the extended excavation in the southern portion of the SWDA. Samples exceeding 10 ppm were primarily located along the eastern sidewalls of the SWDA excavation. Follow up excavations were completed through the EPA START program in 2017. These excavations focused on the grinding swarf area and removed the remaining swarf material from the river bank.

Soils with elevated PCB concentrations present a possible direct exposure scenario if the Site were active, however, direct exposure is limited due to the current use of the Site. Should redevelopment occur, PCB contaminated soil is likely to be encountered by Site workers. Demolition and construction activities are likely to disturb contaminated soils and generate dust, which may create the potential for exposure to PCBs through inhalation if not conducted in an appropriate manner.

NAPL contaminated soils have been identified in two locations at the Site: north of CY-2 and downgradient of the former 70,000-gallon bunker oil UST. The NAPL located to the north of CY-2 is an assumed to comprise and area of approximately 1,000-square foot area below an AST vault which extends to 6-feet below the existing grade. NAPL contaminated soils adjacent CY-2 are approximately 3-feet thick and are not believed to contain PCBs. Surrounding wells indicate the NAPL is immobile as no indications of the oil have been identified in downgradient wells. In the current conditions, there is relatively low exposure risk to the NAPL contaminated soils north of CY-2 for Site users due to the depth of the contamination.

Historical releases of bunker oil from the 70,000-gallon UST have resulted in the presence of LNAPL in soil and groundwater downgradient of the UST. In January 2018, TarGOST sampling was completed to assess the extent of NAPL contamination associated with the 70,000-gallon bunker oil UST. TarGOST screening identified the areal extent of the NAPL to be approximately 18,000-square feet and was typically identified between 11 and 15-feet below the ground surface. TarGOST was used to generate a 3-dimensional figure in Environmental Visualization Software (EVS) showing the estimated extent of NAPL in the subsurface. Based on the TarGOST data and EVS model, there is an estimated 2,700-cubic yards of NAPL contaminated soil. Soil samples were collected during the TarGOST work to assess PCB and extractable petroleum hydrocarbons (EPH) associated with the NAPL. PCBs were detected in two of eight samples with a maximum concentration of 32 ppm and fifty percent of the NAPL volume appears to contain PCBs. Elevated EPH concentrations were identified in six of the eight samples collected. NAPL contaminated soil associated with the 70,000-gallon fuel tank is in deeper soils and does not currently present an exposure risk to Site users, however, it is likely an on-going source for potential impacts to groundwater and the Black River.

2.3.4. Impacts to Sub-Slab Soil Gas

Historical releases and spills as well as off-Site sources have resulted in two distinct soil gas plumes below the building. Based on the current condition of the Site, there is little concern for vapor intrusion due to the sub-slab soils gas, however, should the building be occupied in the future measures to address sub-slab soil gas would be required to mitigate inhalation risk.

Chlorinated solvents associated with groundwater contamination are present in soil gas below the building slab. The approximate footprint of the soil-gas plume is 108,000 square feet and is located below the middle and southern portions of the building, as shown on Figure 3. COCs present in soil gas consist of PCE, TCE, and cis,1,2-DCE at maximum concentrations of 210,000 micrograms per meter cubed ($\mu g/m^3$), 170,000 $\mu g/m^3$, and 21,000 $\mu g/m^3$, respectively.

Previous investigations identified naphthalene in soil gas at a maximum concentration of 2,800 $\mu g/m^3$ in the northern portion of the Site. Methyl-tert-butyl ether (MTBE), which is typically added to gasoline, was also detected in soil gas in the northern portion of the building. Data suggests that the source for naphthalene soil gas plume originates off-Site to the northwest of the building. This CAP does not address potential impacts due to soil gas. Additional corrective actions will be required for development of future buildings on Site.

2.4. Sensitive Receptor Evaluation

Based on the current CSM, potential exposure pathways to human and/or ecological receptors are evaluated below:

- **Concrete –** Exposure pathways for humans through impacted concrete include dermal absorption (via direct contact), ingestion, or inhalation. The Site is currently vacant and access within the building is limited, thus, exposure risk is limited to trespassers or the occasional environmental consultant. Should redevelopment occur, mitigation or remedial techniques should be implemented to reduce direct exposure to impacted concrete as well as dust that could be produced through construction activities.
- **Soil –** Exposure pathways for humans through impacted soils include dermal absorption (via direct contact), ingestion, or inhalation. A majority of surficial soil contamination is within transformer areas which are located within the building, thus access is limited. However, there is the potential for direct exposure to Site users along the eastern half of the Site where PCB and TPH contamination are present in shallow soils. Future redevelopment should implement mitigation strategies to reduce direct exposure to these impacted shallow soils.
- **Groundwater** – Water supply wells are currently not being used on-Site, therefore there is no exposure pathway for humans through the ingestion of contaminated groundwater. Data does suggest that NAPL originating from the 70,000-gallon fuel tank and the chlorinated solvent plume (PCE, TCE, and their breakdown products) may be discharging to the Black River through Site groundwater. Remediation of impacts to groundwater will not be addressed within this Partial CAP.
- **Indoor Air** – The Site building is abandoned and not in use, there is currently no risk of exposure to VOCs through a vapor intrusion pathway or PCBs through volatilization. If redevelopment plans include the renovation or construction of a new building, additional assessment would be required to determine the proper remedial strategies to mitigate exposure to VOCs and/or PCBs in indoor air. Potential indoor air contamination will not be addressed within this Partial CAP.
- **Surface Water** – There are currently no known impacts to surface water, however surface water has not been directly assessed. Based on the observations of CVOCs in sediment pore water and petroleum sheening in the river, there may be a risk to benthic organisms associated with contaminated groundwater discharging to the Black River. Remediation of potential impacts to surface water will not be addressed within this Partial CAP.
- **Sediment** – Site contaminants of concern, specifically PCBs, PAHs, LNAPL, and metals contaminated soils have impacted sediment within the Black River through runoff from the Site. CVOC contaminated groundwater is discharging through sediments to the Black River. It is unknown whether benthic organisms have been adversely effected by either of these pathways.

2.5. Nearby Sensitive Receptors and Abutting Landowners

Using the Vermont Agency of Natural Resources (ANR) Natural Resources Atlas, a qualitative receptor analysis was completed to evaluate the occurrence of potential receptors relative the Site.

2.5.1. Drinking Water Supply

There are 42 private water supply wells and 1 public water supply source within a 1-mile radius of the Site. 36 of the private water supply wells are located up-gradient of the Site, thus are not considered as sensitive receptors. The six other private water supply wells and the public water source are all located east of the Site on the opposite side of the Black River to the Site. Data suggests that groundwater contamination is bound vertically by the underlying silt and clay layer and confined to the shallow aquifer and is potentially discharging to the Black River. It is unlikely the wells east of the Site have the potential to be impacted by groundwater contamination.

2.5.2. Surface Water Source Protection Areas

There are no surface water protection areas identified within 1.0 miles of the Site.

2.5.3. Groundwater Source Protection Areas

There are no groundwater protection areas identified within 1.0 miles of the Site.

2.5.4. Buildings with Basements

No data was available for buildings with basements on the Environmental Interest Locator.

2.5.5. Wetlands

There are several wetlands within a 1.0-mile radius of the Site, however, these wetlands are either up-gradient of the Site or located to the east, on the opposite side of the Black River to the Site. These wetlands are not considered as sensitive receptors relative to the Site.

2.5.6. Sensitive Ecological Areas

Mapped sensitive ecological areas, including deer wintering yards, habitat blocks, significant natural communities, VT Fish and Wildlife managed lands, and Indiana Bat hibernacula within a 1-mile radius of the Site are limited to six habitat blocks surrounding the Site. All habitat blocks are located up-gradient of the Site, except for an 859-acre habitat block that includes a portion of the Black River downgradient of the Site.

2.5.7. Rare, Threatened, and Endangered Species

There are no rare, threatened, or endangered species habitats within a 1.0-mile radius of the Site.

3. Regulatory Guidelines/Remedial Action Objectives

Regulatory guidelines and remedial action objectives for will only be provided for media and COCs for which the Partial CAP is being written. Applicable regulatory criteria include:

- Soil: Soil Screening Values (SSVs) presented in Appendix A - §35-APX-A1 of the Investigation and Remediation of Contaminated Properties Rule (I-Rule). PCBs are also regulated by the EPA under TSCA 40 Code of Federal Regulations part 761 (the CFR).
- Concrete: PCBs in concrete are regulated by the EPA under TSCA 40 Code of Federal Regulations part 761 (the CFR).

PCB cleanup standards for soil and concrete in accordance to 40 CFR 761.61 are as follows:

- High Occupancy Areas with PCB concentrations:
  - ≤1.0 ppm, no further action required;
  - >1 ppm and ≤10 ppm, contaminated material shall be capped, and deed restriction placed on the Site.
- Low Occupancy Areas with PCB concentrations:
  - ≤25 ppm, a deed restriction shall be placed on the Site;
  - >25 ppm and ≤50 ppm, contaminated material may remain if the contaminated areas are fenced off and marked with a large PCB marker and a deed restriction placed on the Site;
  - >25 ppm and ≤100 ppm, contaminated material shall be capped, and a deed restriction placed on the Site.

The remedial action objectives that provide the premise for corrective action at the Site are designed to prevent direct contact with PCB and petroleum impacted soils and PCB impacted concrete. For the Partial CAP, soil and concrete with PCB concentrations greater than 1 ppm will be capped during demolition activities to minimize direct exposure risk to Site construction workers. Following demolition activities, soil and concrete with PCB concentrations greater than 10 ppm will be capped to prevent direct exposure to Site users. No deed restrictions will be placed on the Site at this time since future remedial actions for redevelopment are anticipated at the Site.

4. Corrective Action Plan

This section describes the recommended design elements for the proposed engineered barriers to mitigate exposure risk to Site users from contaminated soils and concrete. Installation of engineered barriers will be performed under the supervision of a Qualified Environmental Professional (QEP) and barrier construction will be approved prior to demolition to ensure exposure risk is mitigated prior to Site work.

Under Section §35-503(b) of the I-Rule, a CAP may be submitted without conducting an evaluation of corrective action alternatives (ECAA) if the following have been demonstrated:

1) The site investigation report demonstrates that there are no impacts to drinking water sources, vapor intrusion is not occurring, and there are no other impacts that present a threat to human health; NOTE: Site Investigation Report have not indicated a threat to human health exists at the Site.
2) For impacted groundwater, the site investigation report demonstrates that the groundwater contamination is confined to the property where the release occurred on or will recede to the property boundary within the timeline established in the Vermont Groundwater Protection Rule and Strategy; NOTE: The Final CAP will address groundwater contamination; an ECAA will be developed to address this media of interest prior to submitting the Final CAP.
3) Except when the hazardous material can be addressed through a removal of a limited amount of source material, the site investigation demonstrates that there are no direct contact threats to sensitive receptors; and The Final CAP will address documented threats to sensitive receptors, specifically potential impacts to surface water and off-site migration of contaminated groundwater; an ECAA will be developed to address this media of interest prior to submitting the Final CAP.
4) A corrective action plan will document that the proposed remedy, with respect to the hazardous material in question, has been utilized at other sites and has been demonstrated to be reliable, cost effective, and effective in addressing remediation of the hazardous material. NOTE: The proposed remedial elements of the Partial CAP include installation of barriers and soil management – proven and cost-effective remedial strategies – as both interim (barriers for concrete contamination) and engineered final design (bike path).
5) For Development Soil receiving sites, all requirements in §35-512 have been met, and a corrective action plan which addresses potential direct contact with development soils by the public, including capping and land use restrictions, has been approved by the Secretary. NOTE: Not Applicable.

4.1. Primary Redevelopment Elements

Current development plans include the demolition of approximately 270,000-square feet of the former J&L Plant #1 building, installation of an interim barrier over PCB contaminated concrete, installation of fencing and signage to prevent access to contaminated soils and concrete, and the construction of a bike path serving as an engineered barrier through the Site along the Black River.

Due to restrictions in access, limited area, and step-wise nature of the near-term redevelopment, the following bullets present the general timing of implementation:

1. Install fence along Clinton Street to prevent Site access during demolition - Spring, 2019;

2. Demolition of Site building - Summer, 2019;
3. Installation of fencing and interim barriers after building demolition – Fall, 2019; and
4. Construction of the bike path. Fall, 2019

4.2. Basis of Design and Materials of Construction

The basis of design to reduce the potential for human contact with contaminated soils and concrete at the Site is the construction of engineered barriers and restricting access to areas of the Site where engineered barriers are not present with fencing.

The engineered barriers to be constructed at the Site will consist of the materials listed below, or other equivalent and agreed upon materials.

Temporary Barrier – Pre-Demolition:

- Non-woven 10-mil nylon-reinforced polyethylene (NRPE) sheeting directly on concrete slab
  - Construction adhesive to be applied around perimeter of NRPE
- 1/2-inch plywood sheets laid across NRPE to prevent punctures.
- Non-woven 10-mil nylon-reinforced polyethylene (NRPE) sheeting installed over plywood sheets
  - Construction adhesive to be applied around perimeter of NRPE

Plywood will be loaded out with demolition debris; NRPE will be transported and disposed as PCB remediation waste.

Open subsurface pits and the cafeteria basement area within the building will be filled with soils generated from the bike path construction.

Interim Barrier – Post Demolition over areas with >10 mg/Kg Total PCBs in concrete and >1 mg/Kg Total PCBs in soil (transformer courtyards):

- New non-woven 10-mil NRPE sheeting
  - Construction adhesive to be applied around perimeter of NRPE
- 2-inches of 1-inch minus crushed stone
- Straw wattles

Protective Fencing

- Galvanized steel pipe, 6-foot minimum height
- Woven galvanized steel wire mesh, 6-foot minimum height
- Dark green mesh fabric, 50% porosity and weather resistant
- 6” by 6” PCB warning sign.

Temporary Drive

- Geotextile fabric – Marafi 140N or similar
- 1.5-inch crushed stone, 6-inch thick minimum

Landscape Barrier

- Geotextile fabric – Marafi 140N or similar
- Landscape backfill, 10-inch thick minimum

- Topsoil, 2-inch thick minimum
- Subgrade – undisturbed existing.

Bike Path

- Geotextile fabric – Marafi 140N or similar
- 1.5inch crushed stone, 6-inch thick minimum
- 2-inch Bituminous Concrete (minimum)

4.3. Erosion Control Measures

To prevent the migration of contaminated soils during demolition and construction activities, erosion control measurements will be utilized at the Site. Further guidance for erosion control measures are detailed in the Weston and Sampson Specifications titled *Abatement and Demolition of Former Jones and Lamson Buildings*, dated December 30, 2016. Demolition activities are not expected to generate excess contaminated soil and concrete. Bike path construction activities will produce approximately 2,000 yards of soil to be managed on Site by in-filling sub-surface voids within the building. Any stockpiles generated will be placed on polyethylene sheeting with a minimum thickness of 6-mils. All piles of contaminated material will be surrounded by silt fence with hay bales to prevent infiltration of storm runoff as well as exfiltration from the stockpile. All stockpiles will be covered at the end of each day by polyethylene sheeting with a minimum thickness of 6-mils.

To further prevent the spreading of contaminated soils from the Site, a temporary road and decontamination pad will be constructed as part of the demolition and construction activities (Figure 4). Loadout of demolition debris will occur on the driveway to limit the disturbance of PCB contaminated soils. All vehicles will be decontaminated prior to exiting the Site to ensure no contaminated soils or dust leave the Site.

Dust control and monitoring will be performed during Site activities as stated in general construction plans and specifications for building demolition and are detailed in the Weston and Sampson report, dated December 30, 2016. An air monitoring plan is provided in Appendix C.

Erosion control details are provided on Figure 5 & Figure 6 in Appendix A.

4.4. Building Demolition

Building demolition specifications are provided within Appendix B. In general, the building contains two sections that require unique approaches due to their condition and presence of asbestos containing materials (ACM). Portions of the building that are structurally sound will see ACM abatement performed prior to demolition while portions of the building that are not structurally sound will be treated as comingled asbestos waste and be loaded out in bulk.

Prior to the building demolition an Environmental Professional will locate and mark the 12 columns that are impacted with PCBs. During demolition, these columns will be segregated from other building columns and handled in one of the following ways:

- Cleaned using a solvent to remove PCB contamination, confirmation wipe samples will need to be completed to demonstrate PCBs have been removed;
- Disposal of the columns at an approved landfill as PCB remediation waste; or
- Transport to a metal smelting facility that is permitted to accept metal with PCB concentrations above 10 $\mu g/100cm^3$.

Prior to starting demolition activities, floor drains will be located and positioned with a sub-meter GPS. The inlet of each floor drain will be covered with three-quarter-inch plywood. Vaults will be covered with 3/4-inch plate steel.

Following completion of the demolition, all floor drains and vaults will be cleaned of sediment and sludge. Floor drains, roof drains, and sewer inlets shall be plugged with six inches of hydraulic cement. Historical reports have identified PCB contamination within floor drains at concentrations >50 ppm, prior to sealing floor drains and associated sumps, sediment will be removed, drummed, and disposed of at an approved landfill as PCB waste >50 ppm in accordance with 40 CFR 761.62. Vaults will be filled with soil generated from the bike path construction. Steel plates will be left over the vaults until such a time that they can be filled with soil.

All Site monitoring wells shall be protected from damage. The QEP and contractor shall meet on Site to verify all monitoring well locations. Damaged wells are to be replaced by the contractor at no cost to the owner.

4.5. Soil Management Plan

Redevelopment plans for the bike path along the eastern side of the Site requires that existing grades be maintained following installation of the engineered barriers (i.e., the bike path and landscaped areas). Preliminary estimates indicate that up to 2,200 cubic yards (cy) of excess soil will be generated during the construction of the bike path with an additional 126 cy generated by plantings. It is anticipated that excess material generated during the bike path construction can be placed in the basement and pits throughout the building. Portions of the bike path will be in areas where remedial activities of surficial soils have already occurred, specifically the SWDA and swarf areas, minimizing the amount of impacted soil that may be disturbed during construction activities. Figure 3 presents an area of the path that, based on previous environmental investigations, soils contaminated with metals (chromium and lead) are expected. While work is performed in this section of the proposed bike path, air monitoring should be performed.

Soils generated during the bike path construction are assumed to contain COCs associated with urban fill Sites, PAHs, and metals. Material generated during the bike path construction will be reused to fill pits and basement areas on the property so off-Site disposal will not likely be required (Figure 4). If generated soils do not result in enough volume to fill all Site voids, Site soils will be topped with geotextile fabric and the remainder of the void filled with gravel. Table 3, below, provides a summary of soil mass balance for the Site.

Table 3: Soil Cut / Fill Volumes

Location	Volume Cut (-) / Fill (Cubic Yards)
Cuts (-)	
Bike Path	-2,200
Landscaping (trees and shrubs)	-126
Cuts Total	-2316
Fills (+)	
Part C Process Pits	440
Cafeteria Basement	2,082
Electrical Storage	250
Fills Total	2772
Net	456

Based on this calculation, all soils generated from the bike path construction can remain on Site. If surplus soils are generated, they are to be temporarily stockpiled in accordance to the erosion prevention and sediment

control plan. Soils should be sampled to determine waste characteristics if off-Site disposal will be needed. Samples are to be collected and analyzed for PCBs, VOCs, SVOCs, TPH, RCRA 8 Metals, reactivity, and ignitability. Following waste characterization sampling, approval will be sought at an applicable disposal facility. PCB concentrations are likely to be the driver for determining disposal options for Site soils. Soils with PCBs less than 1 ppm may be disposed of at any receiving facility pending analytical results for other Site COCs. Soils with PCBs greater than 1 ppm but less than 50 ppm are regulated under TSCA and must be disposed of in accordance to 40 CFR 761.61.

Areas for on-Site wasting will be filled in 6-inch lifts of soil and compacted by mechanical means. Subgrade material (cut areas) used as fill material should be granular soil – clean, sandy, 10-30% fines, minus 1", and well drained; clay soils, if present, should not be used as backfill and disposed. Material not meeting this description can be used following approval from an On-Site resident engineer. The contractor is to place and compact the subgrade with vibratory plates in 6" lifts (8" loose, 6" compacted), option to increase lift thickness if signed off by the resident engineering and compaction meets 95% Modified Proctor density (95% of the maximum dry density as tested by a laboratory). If 95% Modified Proctor density is not obtained, contractor must excavate lift, backfill, and compact a lesser lift to meet requirements or dispose of the soils.

4.6. Engineered Barriers

Engineered barriers will be installed to prevent direct exposure to contaminated media, soil and concrete, during demolition and construction activities. Engineered barriers, described in detail in the following sections, include polyethylene sheeting and plywood caps, soil and gravel caps, and fencing. Engineered barriers will be installed with environmental oversight by a QEP with experience implementing CAPs. The areal extents and location of each type of barrier is shown on Figure 4.

4.6.1. Temporary Barriers during Demolition

In accordance to the Weston and Sampson Specifications titled *Abatement and Demolition of Former Jones and Lamson Buildings*, and dated December 30, 2016, temporary barriers will be installed prior to building demolition in areas where PCBs were identified in soil and concrete at concentrations greater than 1 ppm equating to approximately 65,000-square feet (Figure 4). The temporary barriers are designed to prevent direct contact with contaminated media by contractors and to keep debris separate from the contaminated slab during demolition activities. Temporary caps will be installed prior to building demolition. Following the building demolition, temporary caps will be removed and disposed of in accordance to Section 4.6, and new interim barriers will be installed in areas where PCB concentrations are greater than 10 ppm. The QEP will pre-mark locations to receive a temporary cap using GPS coordinates prior to demolition activities. The construction of interim PCB caps, to be installed post-demolition, will be discussed in section 4.5.2.

Temporary caps will be installed using two layers of NRPE sheeting with a minimum thickness of 10-mil and a layer of plywood with a minimum thickness of ½". The perimeter of the NPRE sheeting layers will be adhered to the concrete slab using construction adhesive. As shown in the detail drawing on Figure 5 in Appendix A, the plywood layer and NRPE sheeting layers will overlap the edge of soil and concrete contamination. The bottom NRPE sheeting layer will extend beyond the extents of impacted media by a minimum of 1-foot, the plywood layer will overlap by a minimum of 6-inches, and the top layer NRPE sheeting layer will overlap impacted media by a minimum of 2-feet. Only foot traffic and rubber wheeled vehicles will be permitted to travel on temporary cap surfaces. Should the temporary caps be damaged during demolition, immediate response shall take place to repair and or replace the damaged materials.

Following completion of demolition activities, the contractor will load out plywood debris with the demolition debris. NRPE sheeting will be managed as PCB remediation waste.

4.6.2. Post Demolition Interim Barriers

Immediately following building demolition interim barriers are to be installed over areas with PCB concentrations greater than 10 ppm, approximately 5,000-square feet (Figure 4). The QEP will pre-mark locations to receive a post demolition barrier using GPS coordinates following demolition activities. Additionally, interim barriers will be installed over areas where excess soils generated during the bike path construction are placed (e.g., sumps, pits, and the building basement).

The engineered barriers are designed to prevent direct exposure to trespassers and contractors during the interim time between building demolition and the next phase of redevelopment. The barriers described herein is not meant to be a permanent solution, however, barriers will remain in place until a Final CAP is implemented at the Site.

Post demolition interim barriers will be installed using two layers of 10-mil NRPE sheeting, straw wattles, and processed gravel. The NRPE sheeting will be installed over areas where PCB concentrations are greater than 10 ppm, and an adhesive will be used to adhere the NRPE sheeting to the ground. NRPE sheeting will extend at least 2-feet beyond the edge of PCB impacted areas. Straw wattles will be placed around the perimeter of the cap and 2-inches of processed gravel will be placed over the NRPE sheeting.

4.6.3. Fencing and Signs

Fencing will be installed around the perimeter of the Site to restrict access from the public and prevent direct exposure to Site contaminants. Fencing will be a minimum of 6-feet tall and will be marked with PCB warning signs every 40-linear feet. Fence posts will be spaced a maximum of 10-feet and made of galvanized steel pipe suitable for setting in concrete footings, driving into the ground, anchoring with base plates, and inserting into precast blocks. Woven galvanized steel wire mesh will be tied to fence posts. Further detail regarding fence construction is provided on Figure 5. During demolition stakes and caution tape shall be installed around all soil areas with PCB concentrations greater than 1 ppm to limit access and notify Site users of impacted areas.

4.6.4. Temporary Driveway and Decontamination Pad

To prevent further disturbance of contaminated Site soils a temporary driveway will be installed along the eastern edge of the Site as shown on Figure 4. A decontamination pad will also be constructed at the egress gate to remove dirt and dust from trucks to prevent the spread of contaminated media off-Site. The temporary driveway will be a minimum of 20-feet wide and will be constructed using a geotextile fabric and 6-inches of crushed stone, as shown on Figure 6.

To avoid excessive dirt building up within the decontamination pad, a rumble pad will be situated between the temporary road and decontamination pad to remove dirt from tire treads and equipment tracks. The decontamination pad will be constructed in accordance to the Weston and Sampson specifications titled *Abatement and Demolition of Former Jones and Lamson Buildings*, dated December 30, 2016. The decontamination pad will be underlain by a layer of polyethylene sheeting with a minimum thickness of 20-mils. A layer of plywood should be placed between the polyethylene sheeting and stone used to construct the decontamination pad to protect the polyethylene sheeting from puncturing. The pad will be constructed of 3-inch crushed stone and be a minimum of 15-feet wide by 50-feet long. The edges of the decontamination pad will be lined with hay bales. Figure 5 provides further detail for the construction of the decontamination pad.

The temporary driveway and decontamination pad may remain on-Site following building demolition to be reused during future redevelopment projects. If the driveway is to remain, periodic inspections should occur to ensure material is not eroding from the driveway and being transported off-Site, since this material has the potential to contain PCBs. The driveway and temporary decontamination pad should be removed following

the final redevelopment of the Site, at this time both the driveway and decontamination pads shall be removed as PCB remediation waste in accordance with 40 CFR 761.61.

4.6.5. Landscape Caps

Greenspaces are proposed along the edges of the bike path as shown on Figure 4. Prior to the installation of the landscape cap, a geotextile fabric will be placed over contaminated soils to serve as an indicator layer. A minimum of 12-inches of clean fill (landscape backfill and topsoil) will then be installed over the geotextile. The landscape cap may vary in thickness depending on final grade elevations but shall be no less than 12 inches. Landscapes caps will consist of a minimum of 10-inches of landscape backfill and 2-inches of topsoil.

Clean fill placed in greenspaces will be mechanically graded and compacted using light to medium weight excavation or compaction equipment, to prepare the area for finished surface materials. Surfaces will be topped with loam and seeded. Figure 7 provides a cross sectional view of the proposed landscape cap.

Trees to be planted alongside the bike path will have a constructed root ball well such that the well extends at least three feet from the trunk of the tree (6 feet diameter) and to a minimum depth of three feet. Shrubs will be planted within root ball wells measuring two feet from the stem (4 feet diameter) and one and a half feet minimum depth. Wells are to be lined with non-woven geotextile fabric and backfilled with clean fill.

4.6.6. Asphalt Cap

Construction of asphalt caps for the proposed bike path will consist of a geotextile fabric overlain by compacted crushed gravel and a layer of asphalt. The geotextile will serve as an indication layer between clean and contaminated soil. A minimum gravel thickness of 6-inches will be used for the bike path. A minimum of 2-inches of asphalt will overlay the compacted gravel. The engineered asphalt barrier between Site users and contaminated soil will have a minimum thickness of 8-inches. Figure 7 provides a cross sectional view of the proposed asphalt cap.

4.7. Air Monitoring

An Air Monitoring Plan has been prepared to ensure that Site workers and the off-Site public are not exposed to levels of airborne contaminants (lead) or fugitive dusts that could result in unacceptable risks during bike path construction. (Note: Air monitoring completed during building demolition will be completed in accordance with the Weston and Sampson specifications.). The Air Monitoring Plan is provided as an attachment to the Interim CAP (Appendix C). Real-time monitoring equipment will be used on-Site while construction activities that disturb contaminated soil are occurring. An air monitoring log will be kept to document dust concentrations prior to and during construction activities.

Mitigation measures will be employed if action levels are reached or exceeded and may include water misting or calcium chloride application to reduce particulate concentrations to below the action level. Additional measures may include, but are not limited to, tarps or plastic sheeting to further isolate the work area or suspending work until wind speeds drop to acceptable levels. If mitigation measures do not result in a drop in particulate concentrations to background levels, work activities will cease until particulate levels drop to background levels or dust mitigation procedures are re-evaluated.

4.8. Waste Disposal

Dust and any residue collected beneath the temporary caps, as well as polyethylene sheeting and plywood used for temporary caps, will be handled as PCB remediation waste and will need to be disposed of in accordance with 40 CFR 761.61. Material from the decontamination pad, polyethylene sheeting and crushed stone from the temporary driveway, will also require disposal as PCB remediation waste.

Co-mingled building demolition debris will be managed as asbestos containing materials.

4.9. Best Management Practices for Green and Sustainable Remediation

In accordance with ASTM E2893-13, *Standard Guide for Greener Cleanups*, the proposed best management practices (BMPs) for remedial activities have been selected to address the core elements of energy consumption, air quality, water quality, materials and waste, and land and ecosystems. The proposed BMPs specific to Site remedial actions include:

1. Recycle and reclaim materials from the demolition of the former J&L Plant #1 building.
2. Implement an idling management plan for trucks and excavators.
3. Use local staff (including subcontractors) when possible to minimize resource consumption.
4. Establish green requirements (for example, SMPs and BMPs) as evaluation criteria in the selection of contractors and include language in RFPs, RFQs, subcontracts, contracts, etc.
5. Implement erosion control measures in accordance with the Site Erosion Prevention and Sediment Control plan.
6. Use phosphate free detergents or biodegradable cleaning products instead of organic solvents or acids to decontaminate sampling equipment.

4.10. Long-Term Monitoring and Operations and Maintenance

Operations and Maintenance (O&M) activities are expected to be limited following demolition and construction activities. The Site is likely to remain inactive until redevelopment, therefore O&M activities will include monthly checks to ensure the integrity of the Site fence and interim barriers.

4.11. Health and Safety

Due to the presence of contaminated media at the Site, demolition and construction activities should be performed using appropriate health and safety precautions. Contractors performing intrusive activities, where a risk of exposure to contaminated soil is present, will be required to do so under the supervision of a QEP. All Site workers are required to be trained in accordance with the requirements of the Occupational Safety and Health Administration (OSHA)hazardous waste operations and emergency response (HAZWOPER) regulations (29 CFR 1910.120). A QEP will also provide oversight of installation of engineered barriers.

4.12. Permits

Stone anticipates the following permits will be required for the proposed redevelopment and associated corrective actions:

- Construction activities at the Site, including the proposed corrective actions, will be conducted in accordance with the Construction General Permit 3-9020;
  - The Construction General permit 3-9020 will require an EPSC Plan.
- Demolition and hydrant use permits from the Springfield Fire Department;
- Excavation and demolition permits for the Town of Springfield;
- NPDES Discharge Permit.

4.13. Reporting

Following the completion and demolition and construction activities, an Interim Corrective Action Construction Completion Report will be prepared in accordance with §35-507 of the I-Rule and submitted to

the VT DEC, Sites Management Section. The completion report will include a description of Site activities including dates of work and as-built construction diagrams.

4.14. Estimated Costs

Costs for construction of the bike path are to be developed by others. Costs for demolition of the Site building were developed by Weston and Sampson Engineers and are included in Appendix D.

A detailed cost estimate for extraordinary costs above the installation of the bike path is provided in Appendix D and summarized below.

In developing these costs, we have made the following assumptions:

1) Work is expected to occur in non-winter months.
2) Unit costs for common excavation, fencing, and installation of back fill were sourced from the Vermont Agency of Transportation (VTrans) 2-year Averaged Price List from July 2015 to June 2017 based on the 2011 VTrans Specification.
3) An allowance for disposing up to 500 yards (750 tons) of excess soil is included. It is assumed that these soils would be transported to the Waste USA landfill in Coventry, Vermont for disposal as solid waste. Cost per ton estimates are subject to change based on the waste characteristics profile.
4) Construction of the Bike Path adjacent the Site will occur over three months and will require environmental oversight by the contract Environmental Professional. The EP will be onsite daily during disturbance within the portion of the bike path where contaminated soils may be encountered and twice weekly for other work.
5) Air monitoring will be required for approximately one month of the bike path construction.

Table 4: Summary of Estimated Costs, Bike Path Extraordinary Costs

	Task	Professional Services	Consultant	Expenses	Total
1.	Bike Path Project Coordination	$11,292	$0	$1,616	$12,908
2.	Extraordinary Costs for Bike Path Construction	$54,612	$211,790	$15,629	$282,031
3.	Allowance for Soil Disposal (500 cy)	$524	$2,310	$82,500	$85,334
4.	Interim CACCR	$9,342	$0	$0	$9,342
	TOTAL				$389,615

4.15. Schedule, Contracting, and Interim Measures

Upon approval of the CAP, the proposed schedule for completion of the corrective action plan is provided in Table 5, below. Coordination of implementing the CAP can commence immediately following selection of a demolition contractor by SRDC and upon securing funding for the project.

Reporting will be completed within one month of CAP implementation.

Table 5: Proposed Schedule

Task	Duration	Anticipated Start Date
Draft Interim Corrective Action Plan – Regulatory Review	30 days	November 5, 2018
Public Comment period	30 Days	December 5, 2018

Task	Duration	Anticipated Start Date
Final Interim Corrective Action Plan	1 week	December 12, 2018
Bidding and Contracting (By SRDC)	TBD	Expected Winter 2018-2019
Demolition Activities	10 months	Spring to Summer 2019
Bike Path Construction	2 months	Fall 2019
Remedial Action Report	4 weeks	Winter 2019

5. References

Environmental Compliance Services, Inc. (ECS), 2006, Site Investigation Report, Former Jones & Lamson, Plant #1, Clinton Street, Springfield, Vermont, SMS Site # 77-0122.

Griffin International, 2004, Report on Additional Investigation of No. 6 Oil Contamination, Jones & Lamson Plant #1, Clinton Street, Springfield, Vermont, GI# 060442028, VTDEC# 77-0122.

Nobis Engineering, Inc., 2014, Former Jones and Lamson Plant #1, 160 Clinton Street, Springfield, Vermont 05156, EPA Brownfields Grant #96169801, ARRA Cleanup Grant #96121201.

Stone Environmental Inc., 2018, Final NAPL Delineation Site Investigation Report, Former Jones and Lamson Property, 160 Clinton Street, Springfield, Vermont.

The Johnson Company, 2008, Corrective Action Plan for Site Remediation, Former Jones & Lamson Plant #1-Part C, Springfield, Vermont, SMS# 77-0122.

The Johnson Company, 2008, Report of Evaluation of Manufactured Gas Plan Contamination Extent & Migration, Jones & Lamson Plant #1 Property, Springfield, Vermont.

United States Environmental Protection Agency, 2004, DNAPL Remediation: Selected Projects Approaching Regulatory Closure, December 2004

Vermont Department of Environmental Conservation, 2005, Chapter 12 of the Environmental Protection Rules: Groundwater Protection Rule and Strategy.

Vermont Department of Environmental Conservation, 2012, Investigation and Remediation of Contaminated Properties Procedures.

Vermont Department of Environmental Conservation, 2017, Investigation and Remediation of Contaminated Properties Rule.

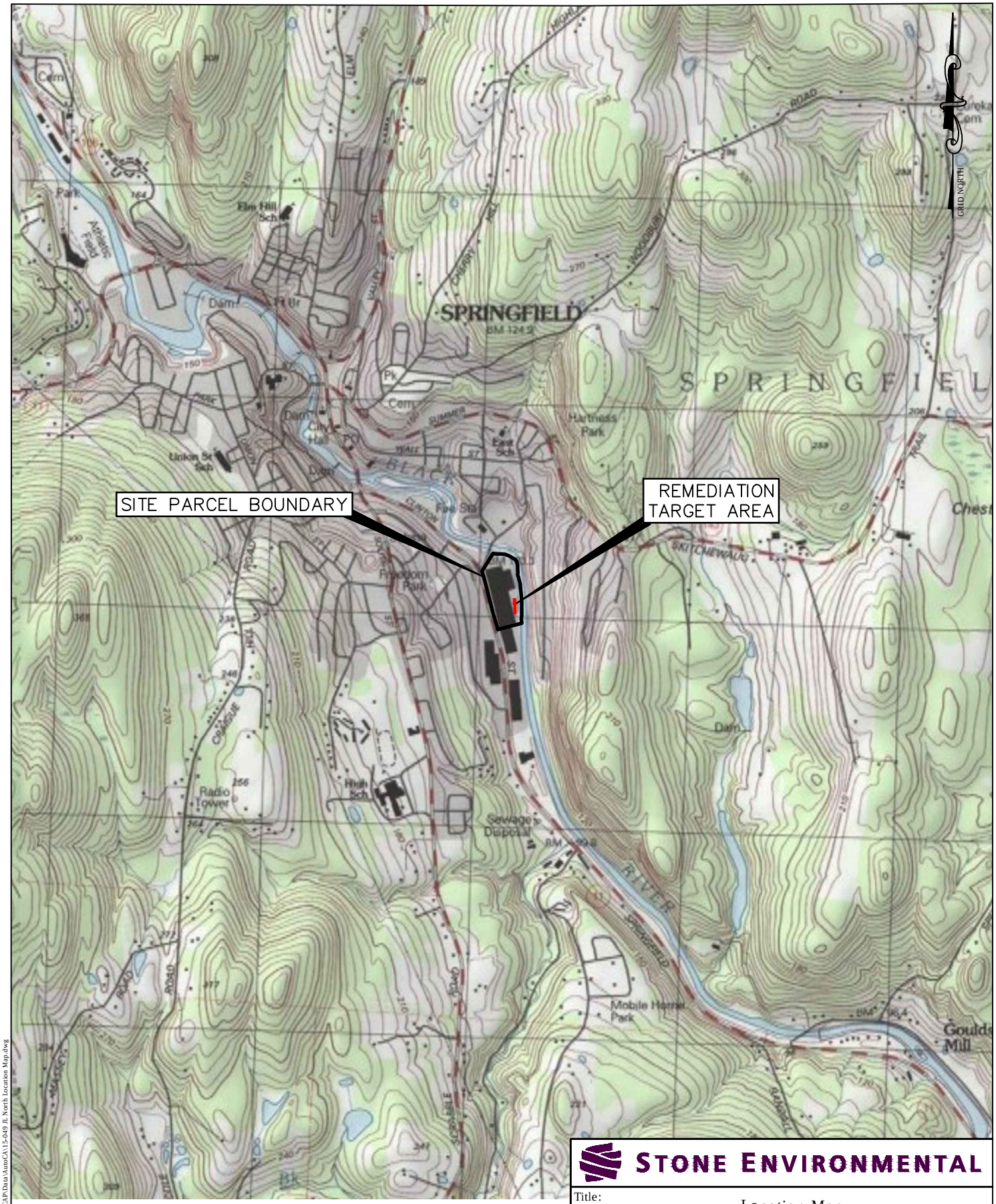
Vermont Department of Environmental Conservation, 2014, Vermont Water Quality Standards, Environmental Protection Rule Chapter 29(a).

Weston Solutions, Inc. (WESTON), EPA Region I START, 2016, Removal Program Preliminary Assessment/Site Investigation Report for the Jones and Lamson Site, Springfield, Windsor County, Vermont, 27 through 30 June 2016.

WESTON, 2016, Structural Assessment Report, Jones and Lamson Machine Company Building Site, 160 Clinton Street, Springfield, Vermont.

Appendix A: Figures

Figure 1: Location Map
Figure 2: Site Map
Figure 3: Areas of Concern
Figure 4: Engineered Barriers
Figure 5: Construction Details
Figure 6: Construction Details
Figure 7: Barrier Details



0 2000 4000

Horizontal Scale in Feet
1 inch = 2000 feet
Contour Interval 6 meters

NOTES
Projection/Datum: VT State Plane/NAD83
Vertical Datum: NAVD88

SOURCE
ESRI US Topo Maps, © 2013 National Geographic Society

STONE ENVIRONMENTAL

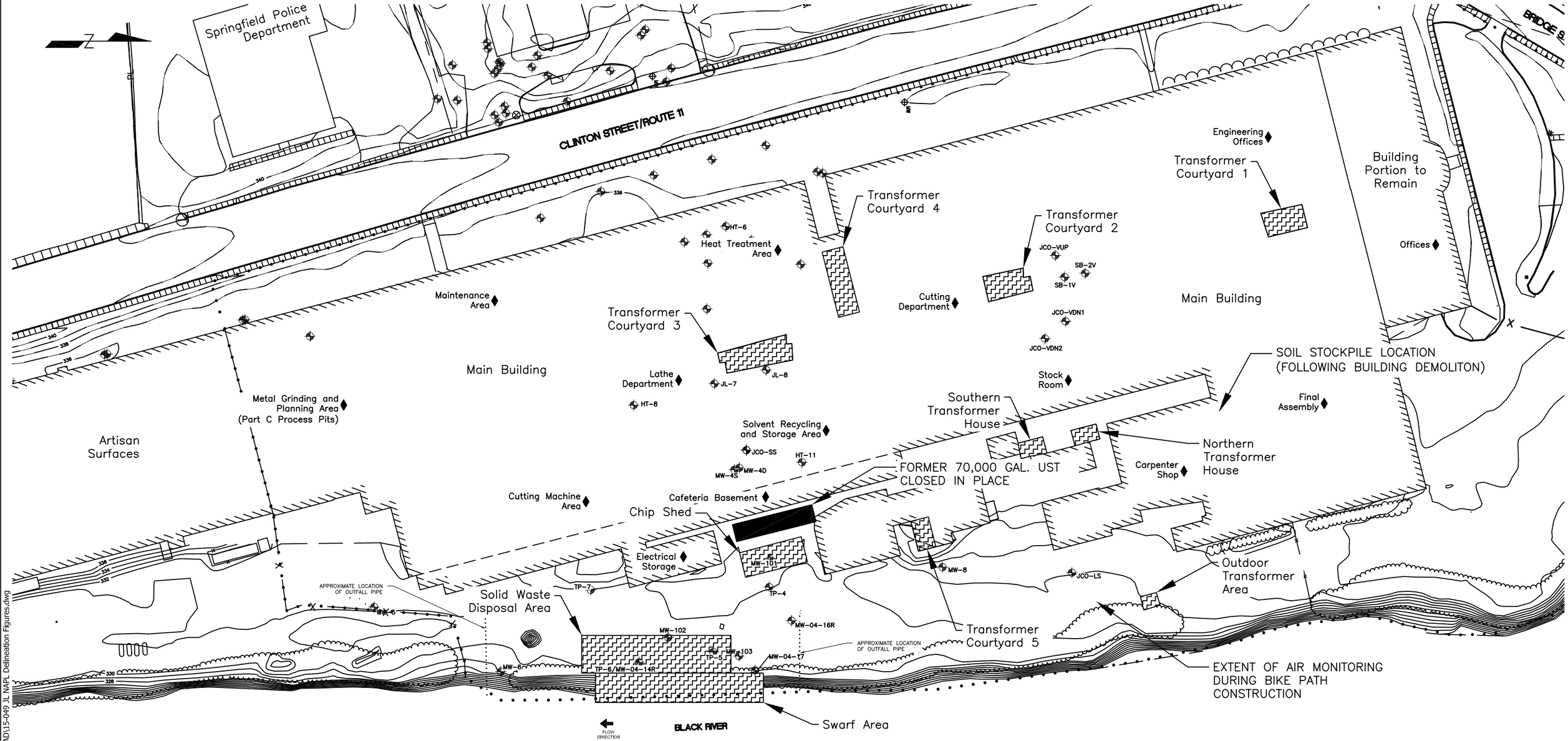
Title: Location Map

Project: J&L Plant #1 Soil Characterization and Remediation

Figure No.: 1

Date: 5/27/2015 Drawn By: SAH Checked By: LJR

O:\Proj-15\8R\15-049 J&L CAP\Data\AutoCA\15-049 JL North Location Map.dwg



LEGEND:

- LIMIT OF WORK
- EXISTING BUILDINGS
- TREE LINE
- PROPERTY LINE
- MONITORING WELL
- Fence Line

1. BASED ON A PLAN ENTITLED "EXISTING CONDITIONS, ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS – 160 CLINTON STREET," PREPARED BY WESTON & SAMPSON, DECEMBER 30, 2016, SCALE 1"=50'.
2. ALL SITE FEATURES ARE APPROXIMATE AND CONTRACTOR SHALL VERIFY IN THE FIELD.

File: O:\Proj-15\J&R\15-049 J&L CAP\Data\AutoCAD\15-049 JL NAPL Delineation Figures.dwg

DRAWING CREDITS

Drawn On:	05/11/2018
Drawn By:	BMD
Checked On:	08/07/2018
Checked By:	DTV
Project No.:	15-049

REVISIONS

#	Date	Drwn	Chk'd	App'd	Description

DRAWING SCALE

0 80 160 Feet

STONE ENVIRONMENTAL
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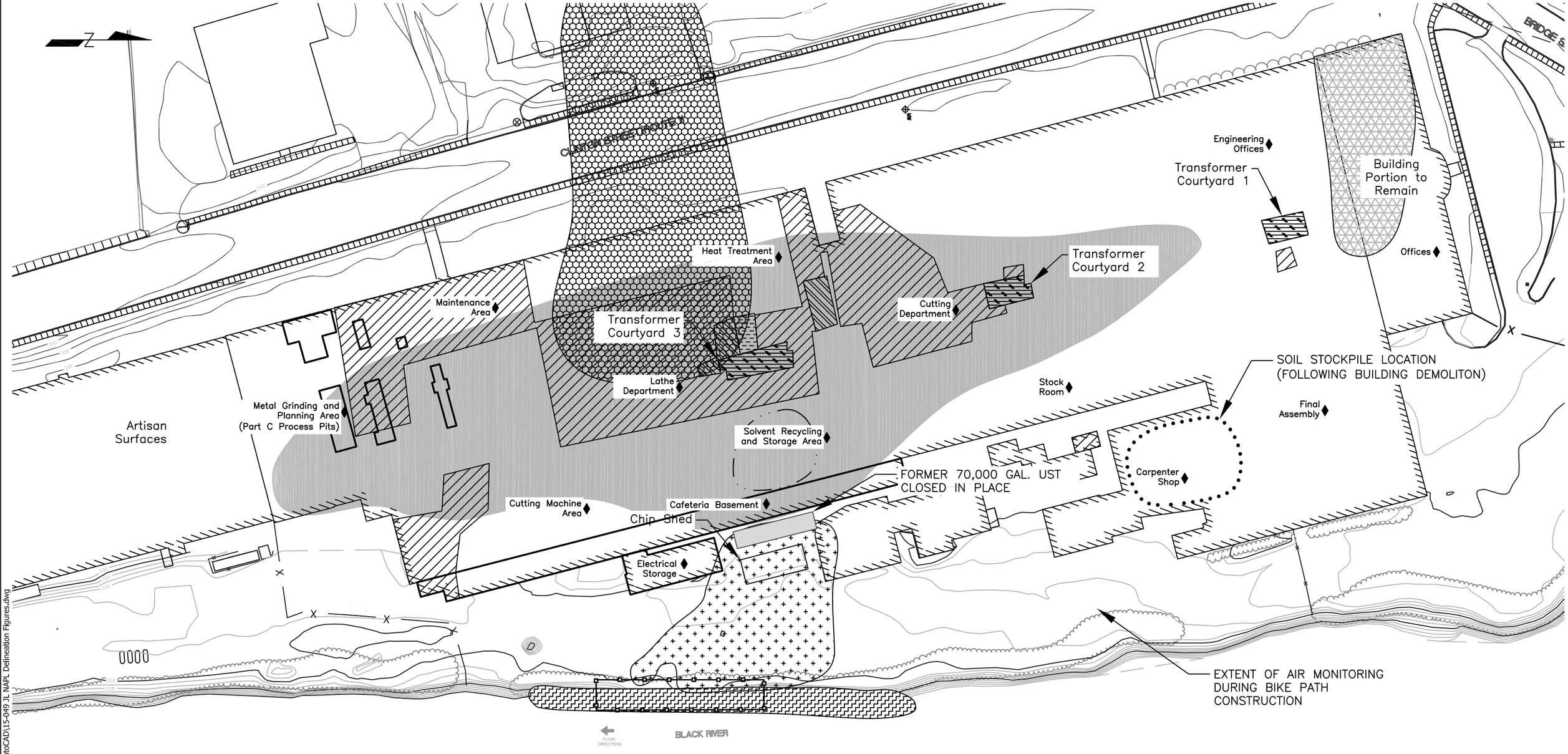
SITE LAYOUT

FORMER JONES & LAMSON PLANT - NORTH PARTIAL CAP

160 CLINTON STREET SPRINGFIELD VT

FIGURE NO. 2



LEGEND:

- EXISTING BUILDINGS
- TREE LINE
- PCBs >50PPM (CONCRETE)
- PCBs >10 AND <50PPM (CONCRETE)
- PCBs >1 AND <10PPM (CONCRETE)
- PCBs >10 AND <50PPM (SOIL)
- TCE SUB SLAB SOIL GAS
- NAPL CONTAMINATION PLUME
- 1000 µg/L PCE ISOPLETH
- APPROXIMATE EXTENT OF CHLORINATED SOLVENTS IN POREWATER
- COAL TAR NAPL PLUME
- NAPHTHALENE SOIL GAS PLUME
- FORMER SWARF AREA

1. BASED ON A PLAN ENTITLED "EXISTING CONDITIONS, ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS – 160 CLINTON STREET," PREPARED BY WESTON & SAMPSON, DECEMBER 30, 2016, SCALE 1"=50'.
2. ALL SITE FEATURES ARE APPROXIMATE AND CONTRACTOR SHALL VERIFY IN THE FIELD.

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DRAWING CREDITS

Drawn On: 05/11/2018
Drawn By: BMD
Checked On:
Checked By:
Project No.: 15-049

REVISIONS

#	Date	Drwn	Chk'd	App'd	Description

DRAWING SCALE

0 80 160 Feet

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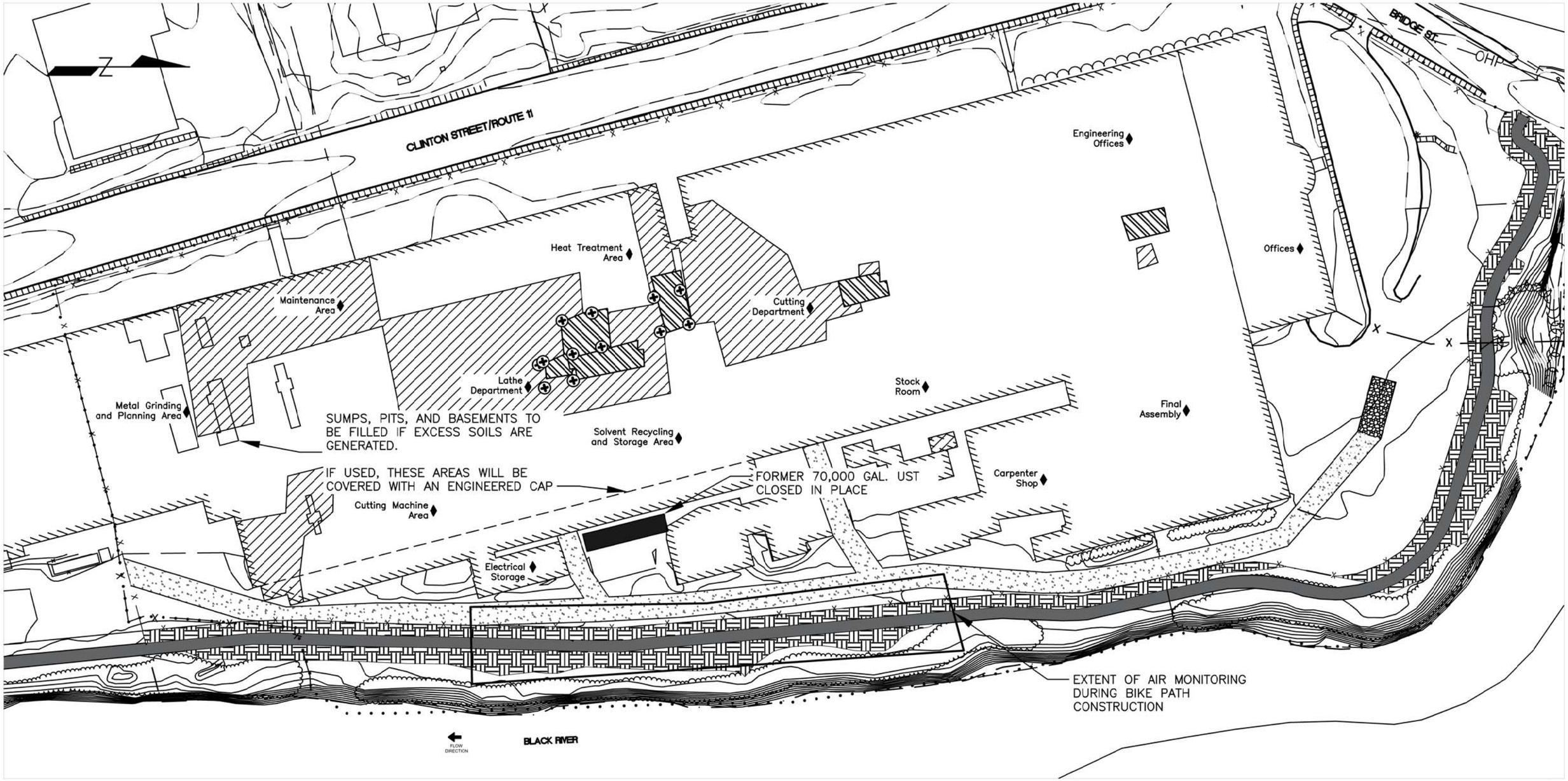
AREAS OF CONCERN

FORMER JONES & LAMSON PLANT - NORTH
PARTIAL CAP

160 CLINTON STREET SPRINGFIELD VT

FIGURE NO. 3



LEGEND:

- EXISTING BUILDINGS
- TREE LINE
- BUILDING DEMOLITION AREA/FENCE
- BIKE PATH CONSTRUCTION AREA
- INTERIOR BUILDING COLUMNS
- COLUMNS REQUIRING REMEDIAL ACTION
- ASPHALT CAP
- LANDSCAPE CAP
- ENGINEERED CAP
- TEMPORARY DRIVEWAY
- DECONTAMINATION PAD
- TEMPORARY ENGINEERED CAP (PCBs >1ppm but <10ppm)

File: FILE LOCATION

DRAWING CREDITS

Drawn On: DTV
Drawn By: BMD
Checked On: 08/07/2018
Checked By: Initials
Project No.: 15-049

REVISIONS

#	Date	Drwn	Chk'd	App'd	Description

DRAWING SCALE

0 80 160 Feet

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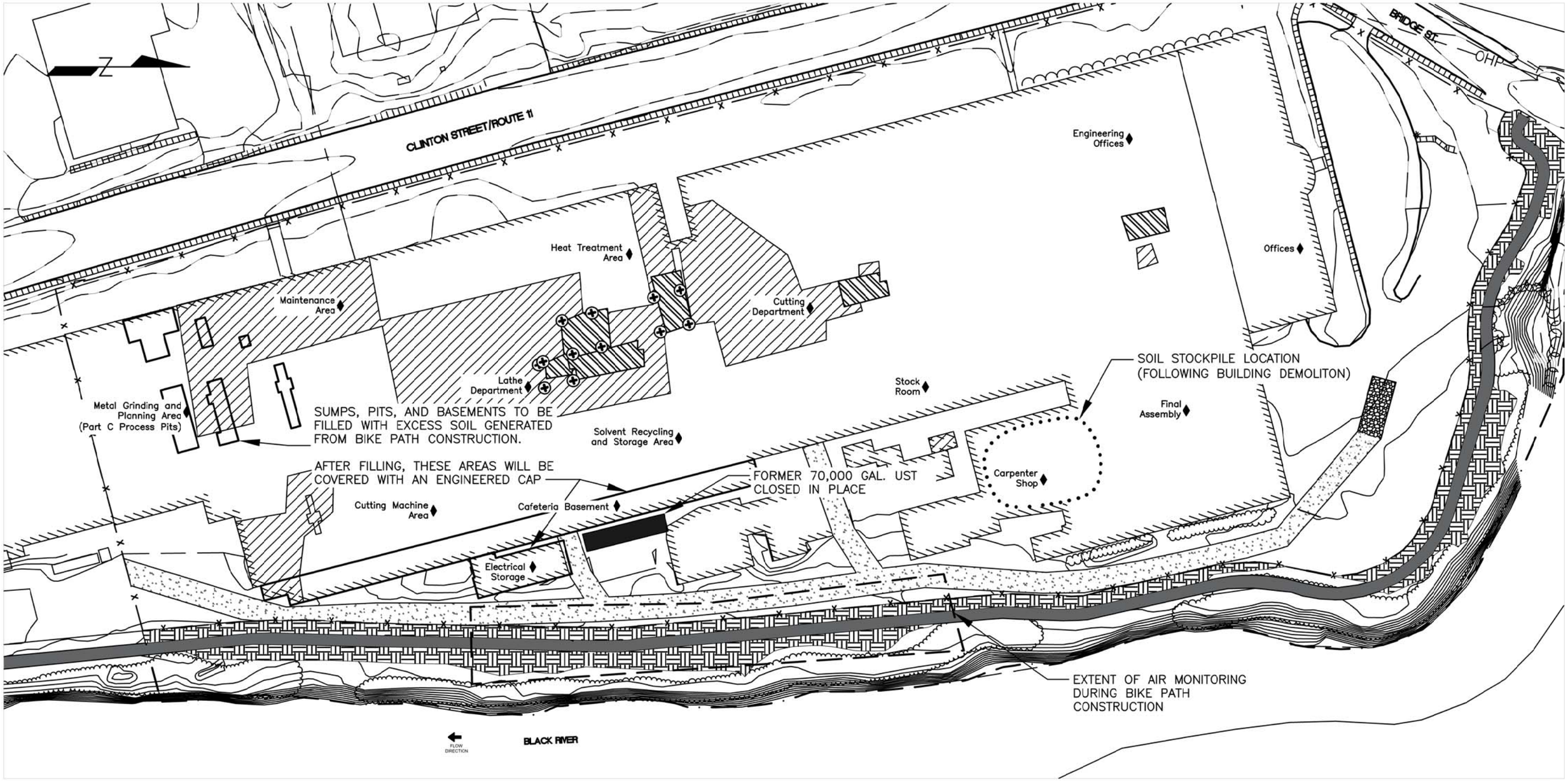
CAPPING PLAN

FORMER JONES & LANSOM PLANT - NORTH PARTIAL CAP

160 CLINTON STREET SPRINGFIELD, VT

FIGURE NO. 4



LEGEND:

- EXISTING BUILDINGS
- TREE LINE
- BUILDING DEMOLITION AREA/FENCE
- BIKE PATH CONSTRUCTION AREA
- INTERIOR BUILDING COLUMNS
- COLUMNS REQUIRING REMEDIAL ACTION
- ASPHALT CAP
- LANDSCAPE CAP
- INTERIM ENGINEERED CAP
- TEMPORARY DRIVEWAY
- DECONTAMINATION PAD
- TEMPORARY ENGINEERED CAP (PCBs >1ppm but <10ppm)

File: FILE LOCATION

DRAWING CREDITS

Drawn On: DTV
Drawn By: BMD
Checked On: 08/07/2018
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Project No.: 15-049

REVISIONS

#	Date	Drwn	Chk'd	App'd	Description

DRAWING SCALE

0 80 160 Feet

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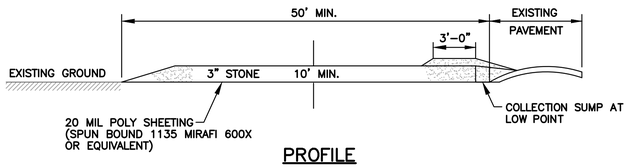
802.229.4541 / info@stone-env.com / www.stone-env.com

CAPPING PLAN

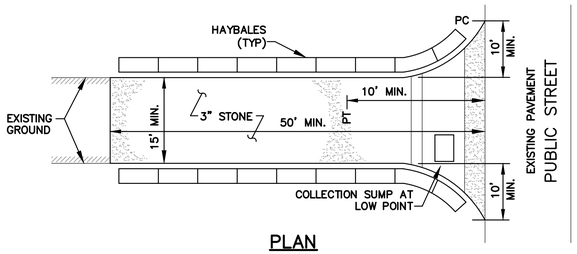
FORMER JONES & LANSOM PLANT - NORTH PARTIAL CAP

160 CLINTON STREET SPRINGFIELD, VT

FIGURE NO. 4



PROFILE

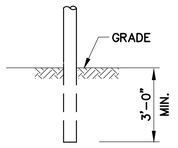


PLAN

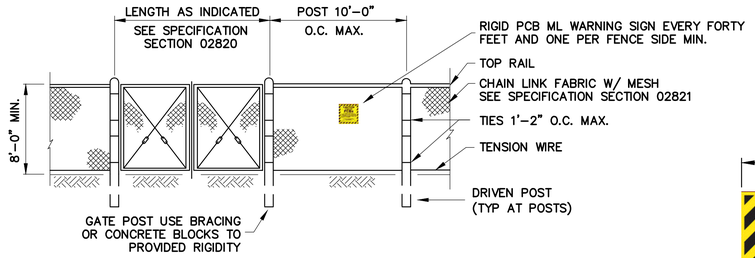
NOTES:

1. 20 MIL POLY SHEETING WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
2. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
3. ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
4. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING SUMP. WATER SHALL BE COLLECTED AND TREATED OR DISPOSED OF PER SPECIFICATION SECTION 02240 – DEWATERING.
5. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.
6. STONE, ACCUMULATED SEDIMENT, AND ANY COMMINGLED DEBRIS/WASTE SHALL BE REMOVED AT THE CONCLUSION OF PROJECT AND DISPOSED OF IN ACCORDANCE WITH SPECIFICATION SECTIONS 02220–DEMOLITION AND 02051–ASBESTOS ABATEMENT. REMOVAL OF STONE SHALL BE AT NO ADDITIONAL COST TO THE OWNER.

DECONTAMINATION PAD
N.T.S.



DRIVEN POST DETAIL
N.T.S.

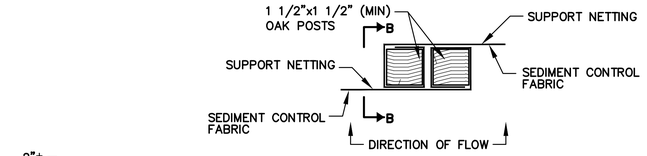


NOTE:

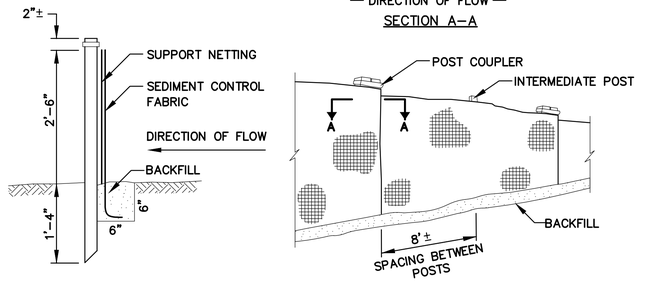
1. SEE SHEET C–3 AND SPECIFICATION SECTION 02821–CHAIN LINK FENCE.

CHAIN LINK FENCE AND GATE DETAIL
N.T.S.

PCB ML WARNING SIGN
N.T.S.



SECTION A–A



SECTION B–B ELEVATION

SILT FENCE DETAIL
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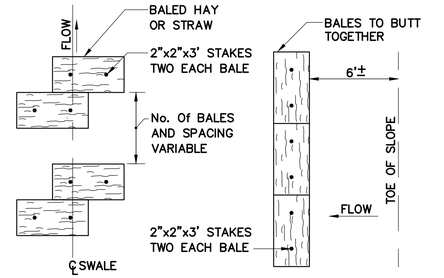
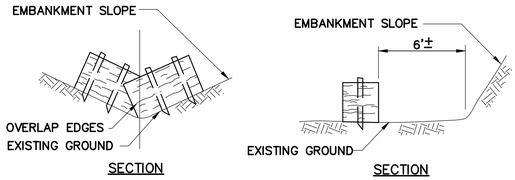


PLAN PLAN



SECTION SECTION

NOTE:
TO BE USED IN LOCATIONS WHERE THE EXISTING GROUND SLOPES IN TOWARD THE TOE OF SLOPE

NOTE:
TO BE USED IN LOCATIONS WHERE THE EXISTING GROUND SLOPES AWAY FROM THE TOE OF SLOPE

HAY BALES DETAIL
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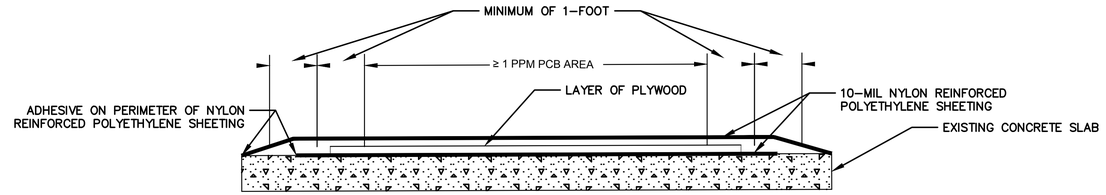

TEMPORARY PCB CONCRETE PROTECTION
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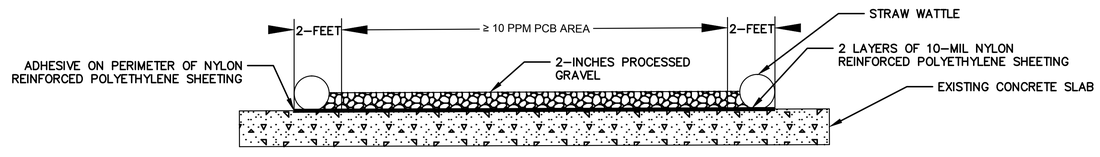

CAP TO EXTEND 2–FEET BEYOND LIMITS OF PCB–IMPACTED AREAS SHOWN ON C–2 AND C–5 (TYP.).

PCB CAP
N.T.S.

Weston & Sampson
98 South Main Street
Waterbury, VT 05676
802.244.5051 800.SAMPSON
www.westonandsampson.com

No.	Date	Description	Dr.By	Ck.By	App.By
		APPROVED			

12/30/16 DATE

REGISTERED PROFESSIONAL ENGINEER

STATE OF VERMONT KENNETH J. BISGROVE No. 8922 Environmental PROFESSIONAL ENGINEER

SPRINGFIELD, VERMONT
DEPARTMENT OR DIVISION
ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

DETAILS I

APP.BY	CHK.BY	DSN.BY	DR.BY	JOB NO.	CONTRACT:	SCALE:	CADD NO.	FILE NO.
KJB	PVU		PML	2160317	-	-	-	-

D-1

SHEET 8 OF 10

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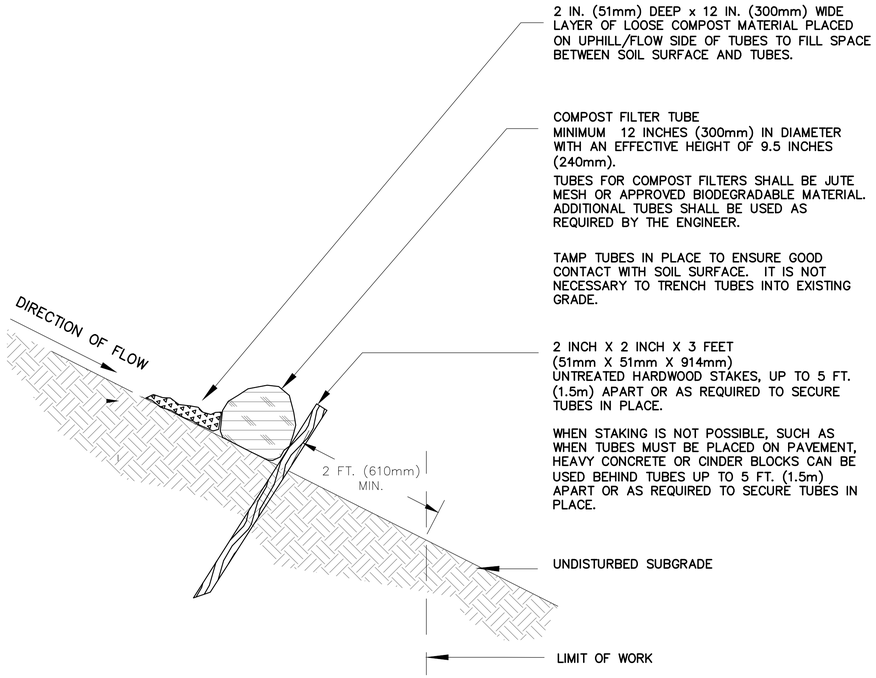

STRAW WATTLE DETAIL
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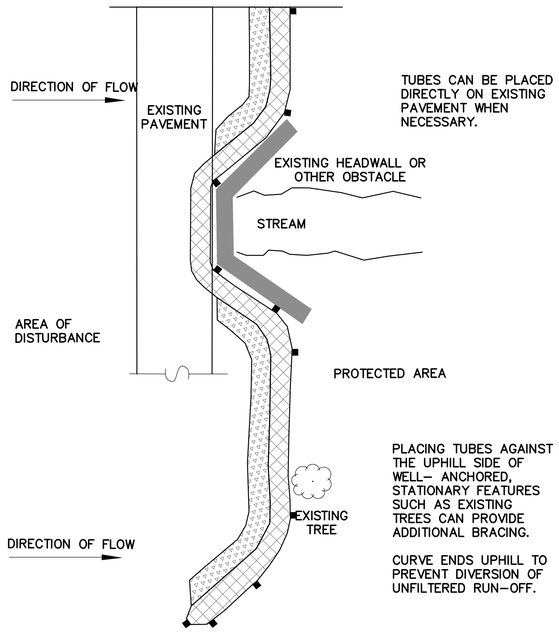
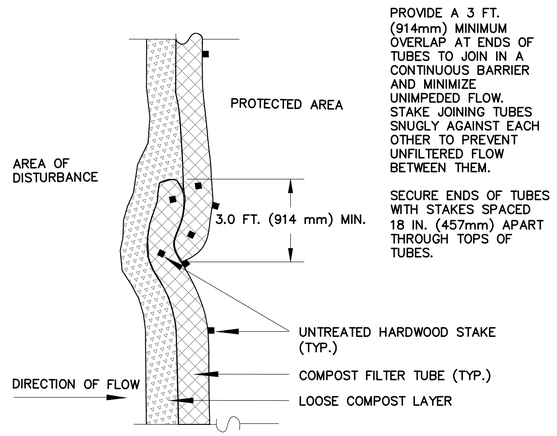


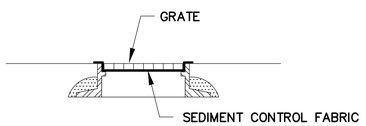
PLAN VIEW

GENERAL NOTES:

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES (300mm) FOR SLOPES UP TO 50 FEET (15.24m) IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
4. CONFIGURE TUBES AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUN–OFF.



PLAN VIEW



CATCH BASIN PROTECTION DETAIL
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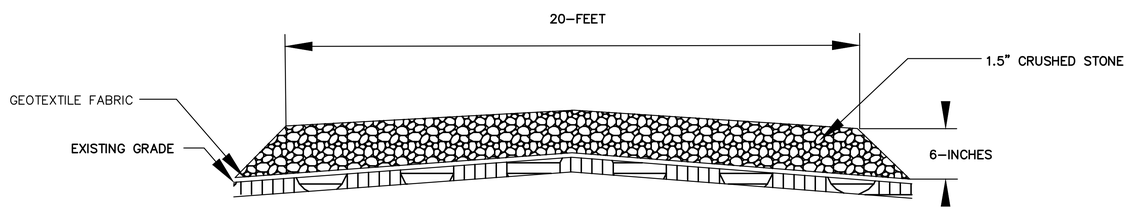


TEMPORARY DRIVEWAY
N.T.S.

V:\SWCRPC VT\Jones and Lamson\CAD\D-1_2_3.stamped.12.30.16.dwg

Weston & Sampson
98 South Main Street
Waterbury, VT 05676
802.244.5051 800.SAMPSON
www.westonandsampson.com

No.	Date	Description	Dr.By	Ck.By	App.By
A	P	P	R	O	V	E	D	12/30/16 DATE

REGISTERED PROFESSIONAL ENGINEER

STATE OF VERMONT KENNETH J. BISSEGGER No. 8922 Environmental ENGINEER PROFESSIONAL

SPRINGFIELD, VERMONT
DEPARTMENT OF DIVISION
ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

DETAILS II

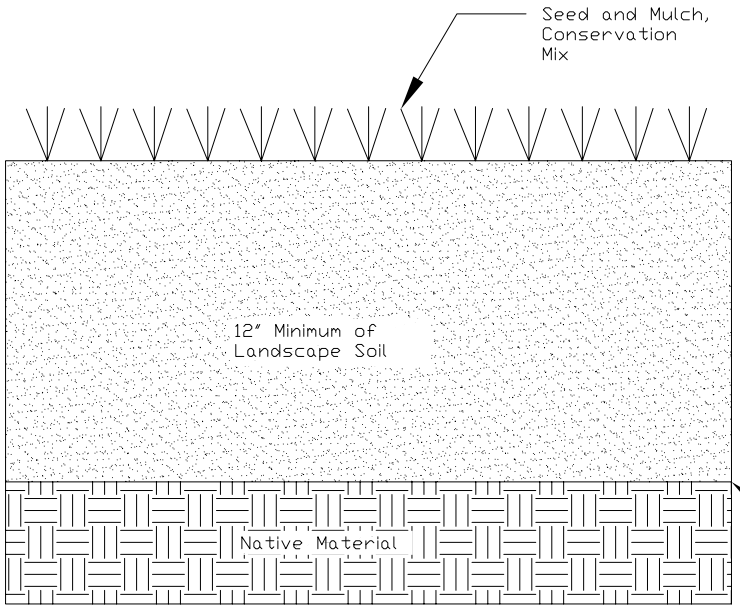
DR.BY	DSN.BY	CHK.BY	APP.BY
PML		PVU	KJB

JOB NO.	CONTRACT:	SCALE:	CADD NO.
2160317	-	-	-

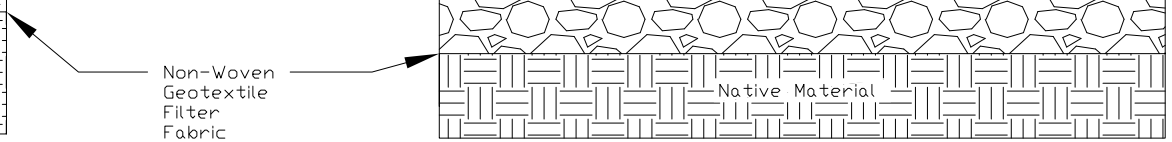
D-2

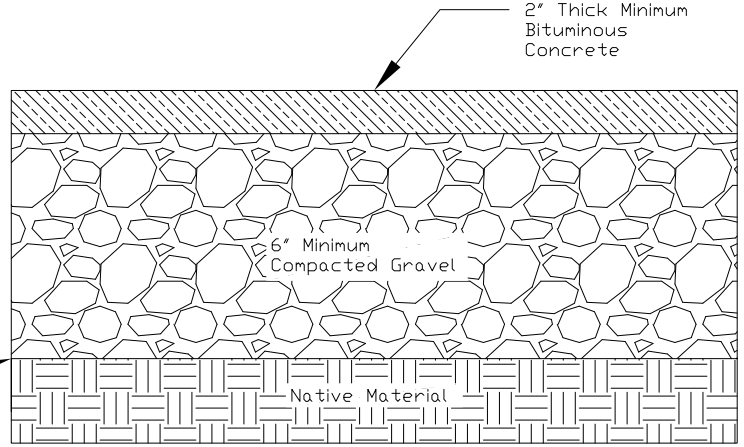
FILE NO. -

SHEET 9 OF 10



Landscape Cap Detail
Not to Scale





Asphalt Detail
Not to Scale

File: O:\Proj-16\CSC\16-177 RCPCC TBA\Data\AutoCAD

DRAWING CREDITS

Drawn On:	07/31/2018
Drawn By:	BMD
Checked On:	Date
Checked By:	Initials
Project No.:	15-049

DRAWING SCALE

STONE ENVIRONMENTAL
535 Stone Cutters Way / Montpelier / VT / 05602 / USA
802.229.4541 / info@stone-env.com / www.stone-env.com

Engineered Barrier Section Details
FORMER JONES AND LAMSON PLANT - NORTH PARTIAL CAP

160 CLINTON STREET SPRINGFIELD VT

FIGURE NO. 7

Appendix B: Demolition Specifications

Weston & Sampson

westonandsampson.com

WESTON & SAMPSON ENGINEERS, INC.
98 South Main Street, Suite 2
Waterbury, VT 05676
tel: 802.244.5051

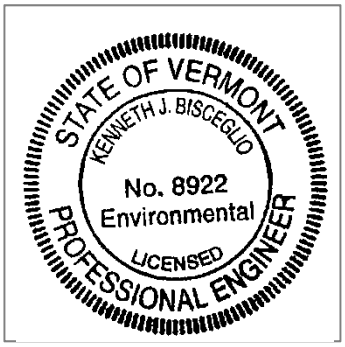
CONTRACT DOCUMENTS

December 30, 2016

Abatement and Demolition of Former Jones and Lamson Buildings

160 Clinton Street

Springfield Regional Development Corporation
Springfield, Vermont



Kenneth J Bisceglio

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END OF SECTION

SECTION 00890

PERMITS

PART 1 – GENERAL

1.01 DESCRIPTION:

A. This Section provides specific information and defines specific requirements of the Contractor regarding the preparation and acquisition of permits required to perform the work of this Project. This Section also provides specific information and defines specific requirements of the Contractor regarding the termination of existing services. The permits and terminations required include, but are not limited to, those specifically described in this Section.

1.02 RELATED WORK:

A. Section 01014 – Scope and Sequence of Work
B. Section 01110 – Control of Work and Materials
C. Section 01500 – Temporary Facilities
D. Section 01562 – Dust Control
E. Section 01570 – Environmental Protection
F. Section 02051 – Asbestos Abatement
G. Section 02075 – Universal and Hazardous Waste
H. Section 02220 – Demolition
I. Section 02222 – Utility Abandonment
J. Section 02240 – Dewatering
K. Section 02300 – Earthwork
L. Section 13282 – Lead Containing Paint Handling

1.03 GENERAL PERMIT AND TERMINATION REQUIREMENTS:

A. The Contractor shall apply for, obtain, and pay for all permits and licenses required, including but not limited to the permits listed below. Contractor shall also be responsible for all fees and costs associated with decommissioning and termination of utility services.

B. The Contractor shall procure all other permits, licenses, and approvals from Federal, State, and local authorities and such other agencies as may be necessary in connection with the work of this Contract.

C. The Contractor shall perform the work in accordance with the Contract Documents, and any applicable Federal, State, and local requirements, permits, or order of conditions.

D. The Contractor shall provide all required certificates to show that the work has been completed in conformity with the permits and shall submit such Certificates of Approval to the Engineer before final acceptance of the work.

E. Terminate services in accordance with the requirements of the governing utility and as specified under Section 01110 – Control of Work and Materials, Section 02222 – Utility Abandonment, and the Contract Drawings.

F. Refer to the Contract Drawings showing the locations of water, gas, sewer, drain, electric, and telephone utilities at the Site. The Contractor shall note that the utility information shown may not reflect actual field conditions.

1.04 SPRINGFIELD FIRE DEPARTMENT:

A. The Contractor shall coordinate with the Springfield Fire Department (SFD) on a number of fire department related issues including building demolition permitting, hydrant decommissioning, and hydrant usage for abatement and demolition activities.

1.05 VERMONT GAS SERVICES:

A. Gas services are terminated by Vermont Gas Services, Inc. The Contractor shall coordinate and pay for gas service termination, utility disconnection and meter removal.

1.06 TOWN OF SPRINGFIELD

A. The Contractor shall coordinate and obtain written approval from Springfield Department of Public Works (DPW) and Springfield Wastewater Facility for the discharge of filtered and, as necessary, granular activated carbon treated water to sewer system.

B. The Contractor shall coordinate and obtain a NPDES discharge permit for discharge of treated waters.

C. The Contractor shall coordinate and obtain written approval from DPW for connection and use of water for this Project.

D. The Contractor shall obtain a demolition permit from the Town of Springfield.

E. The Contractor shall obtain an excavation permit from the Town of Springfield.

F. The Owner has applied for, and will obtain, an ACT 250 Administrative Amendment.

G. The Owner has applied for, and will obtain, Large Quantity Generator Vermont Hazardous Waste Handler Status, with the EPA ID Number VTD-093254381. The Property has been assigned the Code VX-66 – Redevelopment of Contaminated Properties and is therefore tax exempt.

1.07 LEAD, ASBESTOS, AND OIL & HAZARDOUS MATERIALS REQUIREMENTS

A. For requirements associated with lead, asbestos, and oil and hazardous materials, see Section 02220 – Demolition, Section 02051 – Asbestos Abatement, Section 02075 –

Universal and Hazardous Waste, and Section 13282 – Lead Containing Paint Handling.

1.08 SOUTHERN WINDSOR/WINDHAM COUNTIES SOLID WASTE MANAGEMENT DISTRICT

Contractor to obtain all required Haulers License from the Southern Windsor/Windham Counties Solid Waste Management District to transport and/or deliver solid waste generated within member communities.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Use

END OF SECTION

SECTION 01014

SCOPE AND SEQUENCE OF WORK

PART 1 – GENERAL

1.01 WORK INCLUDED

A. As indicated in the Contract Drawings and Specifications, the scope of the proposed work includes abatement of hazardous materials, demolition of existing buildings to the existing slab-on-grade floor and miscellaneous site work at the "Former Jones and Lamson Facility" located at 160 Clinton Street in the Town of Springfield, Vermont ("Site"). The scope of work includes bulk loading a significant portion of the buildings as asbestos containing materials per the Asbestos Abatement Work Plan due to the condition of the buildings. The Asbestos Abatement Work Plan is included as an attachment to Section 02051 – Asbestos Abatement.

The property is approximately 12 acres and includes a former manufacturing facility (currently vacant), a separate boiler house, pump house, power house and storage sheds. The Black River is to the east of the buildings. The manufacturing facility has been vacant since 1985 and is deteriorating and in poor condition. See the Structural Reports by Heritage Engineering included as part of Appendix A for additional information. The overall building complex is approximately 340,000 square feet. The southern section (1979 addition) and a portion of the northern section of the complex will not be demolished as shown on Sheet C-4 of the Contract Drawings. Approximately 277,000 square feet will be demolished under this project.

The first building of the complex was constructed in 1907 with several expansions over the years through 1979. The buildings are primarily is slab on grade with a small basement portion along the eastern side of the complex. The buildings mainly consist of steel frames, brick and concrete. Steel columns and concrete footings support the roofing systems and the roofing consists of steel frames, trusses and concrete panels. The concrete panels support the roofing material. The building has a substantial amount of glass windows on all sides. Site photographs and historical plans have been included in Appendix B.

B. The Contractor shall demolish the buildings according to the phasing plan approved by the Vermont Department of Health (VTDOH) Asbestos and Lead Regulatory Program and EPA Region 1 – Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) as shown on Sheet C-3 of the Contract Drawings. The Contractor may propose an alternate phasing plan based on their preferred means and methods, but will require submittal and approval of an alternate plan from VTDOH and EPA Region 1 – NESHAP at no additional cost to the Owner. Prior to abatement and demolition activities, the Contractor shall complete miscellaneous Site work as specified herein and on the Contract Drawings including, but not limited to utility cutting and capping, installation of fencing, and installation of a temporary roadway and decontamination pad. The approved demolition phasing plan, as shown on Sheet C-3 of the Contract Drawings, is as follows:

Phase 1: Demolition of the 1907 and 1917 buildings consisting of a boiler house with storage areas. The buildings are approximately 20,000 Square Feet (SF) and are on the eastern side of the Site between the main building and the Black River.

Phase 2: Demolition of the 1908 building addition (approximately 35,000 SF).

Phase 3: Demolition of the 1907-1908 building addition (approximately 43,000 SF).

Phase 4: Demolition of 1917 building addition (approximately 51,000 SF).

Phase 5: Demolition of the 1915 and 1941 building additions (approximately 75,000 SF).

Phase 6: Demolition of the 1912-1913 building additions (approximately 53,000 SF).

As the Contractor completes each phase, the Contractor shall install the PCB Cap on PCB-impacted areas as shown on Sheet C-5 of the Contract Drawings. During the course of the work, the Contractor shall support and protect the existing walls that are scheduled to remain on the northern and southern portions of the building complex per Specification Section 02220 – Demolition and Sheets C-5 and D-3 of the Contract Drawings.

C. The Contractor shall furnish all labor, materials and equipment, and incidentals, required to complete the work as shown in the Contract Drawings and specified herein. The scope of the proposed work includes abatement of hazardous materials, demolition of existing buildings and miscellaneous site work. The scope of work under this Contract is specified in detail in the appropriate sections of these Specifications and on the Contract Drawings and includes, but is not limited to, the following:

1. Apply for, pay for and obtain all necessary permits required, including but not limited to those listed in Section 00890 - Permits, by Local, State, and Federal agencies having jurisdiction over work for successful completion of this Contract.

2. Supply all submittals required by Section 01330 - Submittals and those required to proceed with the completion of this scope, including shop and working drawings, Health and Safety Plan, Demolition and Waste Management Plan, Utility Abandonment Plan, and copies of all accepted permits.

3. Provide a 6-foot high chain link fence with mesh fabric and associated swing gates prior to the start of construction activities as shown on the Contract Drawings and described in Section 02821 – Chain Link Fencing.

4. Furnish and install the appropriate signage as described in these Specifications;

5. Furnish and install Construction Trailer as described in these Specifications.

6. Construct temporary driveway and decontamination pad at the Site egress gate as shown on the Contract Drawings. Erosion and sediment control shall be installed as shown on the Contract Drawings and described in these Specifications. This shall include catch basin protection, straw wattles/hay bales and silt fencing as shown on the Contract Drawings, and any additional measures that may be required or as determined by Engineer. Erosion and sediment control measures shall be furnished, installed, maintained and replaced by the Contractor as needed to ensure that sediment laden water/surface runoff does not leave the Limits of Work. Repair and replace any materials that are to be left in place at the end of the Project as directed by the Engineer.

7. Provide all temporary utilities and obtain applicable permits that are anticipated for use during the completion of the Project, including electricity, and temporary water service, if required.

8. In accordance with Section 02240 – Dewatering, the Contractor shall establish dewatering treatment system, as required, to treat pumped water from the Site to meet applicable discharge permits or dispose pumped water off-Site at an applicable disposal facility. Coordinate with the Town of Springfield Department of Public Works (DPW), as required. See Section 02240 – Dewatering for details.

9. Employ real-time dust monitoring utilizing a Mini-Ram (or similar model) during all construction activities. If dust, pollutant, noise, or odor levels exceed those levels outlined in the Contractor's Health and Safety Plan (see Section 01380), Section 01500 – Temporary Facilities and Controls, Section 02051 – Asbestos Abatement and/or Section 01562 – Dust Control, progress shall be halted and measures taken to alleviate the problem without additional cost to Owner. Employ air monitoring, as outlined in Section 02051 – Asbestos Abatement, during all asbestos abatement activities.

10. Clear and grub as shown on the Contract Drawings and within the Limit of Work for demolition and miscellaneous site work (i.e. installation of fencing, etc.), including removal and disposal of trees and shrubs, per Section 02230 – Clearing and Grubbing or as required by the Engineer.

11. Cut/cap/remove/abandon utility services as designated on the Contract Drawings and described in these Specifications, including sewer, drain, gas, phone, electric and water as shown on Contract Drawings. The Contractor shall coordinate utility termination work with the applicable utility companies to ensure services have been shutoff. The Contractor shall be responsible for employing proper protection techniques for all excavations. The Contractor shall keep the Site entrance/exit open and accessible at all times.

12. Begin abatement/demolition per the Contract Drawings and applicable specifications. See Sheet C-3 for the area in the Phase 2 and Phase 3 sections with asbestos containing thermal system insulation to be abated prior to demolition/bulk-loading.

13. As the Contractor progresses into the main building, place 2 layers of 10-mil nylon-reinforced polyethylene (NRPE) sheeting and plywood over the PCB Restricted Zone areas of the floor slab and secure edges of NRPE sheeting with adhesive as specified in Section 02220 – Demolition.

14. Demolish, remove and dispose of buildings, to slab-on-grade, with the exception of sections indicated to remain, as shown on the Contract Drawings and described in Section 02220 – Demolition.

15. Lawful disposal of bulk loaded material. The Contractor should clean non-porous materials (e.g., steel columns) for recycling per applicable regulations.

16. Place 2 layers of 10-mil NRPE sheeting, secure edges of sheeting with adhesive, place straw wattles and place 2-inches of processed gravel over the areas of the floor slab to be capped as shown on the Contract Drawings and as specified in Section 02220 – Demolition. Backfill sumps, pits and trenches within the building footprint with Class B backfill to match the surrounding slab-on-grade elevations.

17. Remove and dispose all miscellaneous trash and debris on the Site; and

18. Remove temporary electrical service and other temporary facilities, remove environmental protection, and remove silt traps used for trapping sediment in catch basins, and leave the roads and all parts of the property and adjacent properties affected by the project in a neat and satisfactory condition.

D. Contractor's operations at the Site are restricted to the Limit of Work shown on the Contract Drawings and any additional constraints presented in these Specifications, except for work specified and indicated to occur beyond the Limit of Work (e.g. traffic control, catch basin protection, access to the Site, etc.).

E. By submitting a bid, the Contractor affirms having carefully examined the Site and all conditions affecting the Work. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions.

PART 2 - PRODUCTS

Not Used.

PART 3 – EXECUTION

3.01 GENERAL

a. The Contractor shall be responsible for scheduling activities and the activities of any subcontractors involved, to meet the sequencing requirements described in Paragraph 1.01.B of this Section and the completion date established for the Contract. Scheduling of the work shall be coordinated with the Owner and Engineer.

b. Prior to performing any work at the Site, the Contractor shall submit a detailed scheduling plan to the Engineer for review per Section 01310 – Construction Scheduling. The plan shall describe the proposed sequence, methods, and timing of the work.

c. The schedule shall consist of a Gantt Chart showing the sequence of work described herein including permitting, submittal preparation, Site mobilization, Site work, demolition phasing, project closeout, demobilization, and contract completion.

END OF SECTION

SECTION 01110

CONTROL OF WORK AND MATERIALS

1. Hauling, Handling and Storage of Materials
2. Easements
3. Open Excavations
4. Maintenance of Traffic
5. Care and Protection of Property
6. Protection of Existing Structures and Utilities
7. Maintenance of Flow
8. Rejected Materials and Defective Work
9. Sanitary Regulations
10. Safety and Health Regulations
11. Site Investigation
12. Electric Service
13. Hazardous Waste
14. Clean-up and Disposal of Excess Material

1. Hauling, Handling and Storage of Materials

A. The Contractor shall, at his own expense, handle, haul, and distribute all materials and all surplus materials, as necessary or required; and shall remove any of his surplus materials at the completion of the Work.

B. The Contractor shall provide suitable and adequate storage for equipment and materials furnished by him during the progress of the Work that are liable to injury and shall be responsible for the protection, loss of, or damage to any equipment or materials by theft, breakage, or otherwise, until the final completion and acceptance of the Work.

C. All removed, demolished and/or excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the work. Materials and equipment shall be kept neatly piled and compactly stored in such location as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

D. The Contractor shall be responsible for all damages to the work under construction during its progress and until final completion and acceptance even though partial payments have been made under the Contract.

E. The Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Site and on existing paved areas on the Site, as much as possible, to minimize unnecessary soil and habitat disturbance or

destruction in accordance with the U.S. Environmental Protection Agency's (EPA's) Principles for Greener Cleanups. The materials and equipment shall be placed as not to injure any part of the Work so that free access can be had at all times to all areas of the Work. The Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work. Should any claim be made by any such owner or occupant because of the performance of the Work, the Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

F. All demolition debris, excavated materials, and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all areas of the Work. Materials and equipment shall be kept neatly piled and compactly stored in such locations that will cause as minimum of inconvenience to adjoining owners, tenants and occupants as possible.

G. The Engineer shall approve staging and lay down areas. The Contractor shall use parking lot area on the northern side of the buildings for staging and lay down areas upon approval of the Engineer.

2. Easements

A. Contractor shall schedule work so that it will cause minimum inconvenience and nuisance to abutting property owners, over the shortest possible time.

B. Easements shall be kept clean; no rubbish or discarded construction materials shall be allowed to accumulate. Storage of demolition debris, materials, equipment, or machinery on easements will not be allowed, unless otherwise specified in the Contract Documents. The Town of Springfield will require access to the sewer easement during the course of work to maintain the active sewer, as required.

C. Restoration of fences, shrubs, trees and grass shall be completed promptly following completion of the work in an easement, to minimize disruption and inconvenience to property owners.

3. Open Excavations

A. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The Contractor shall, at his own expense, provide suitable and safe means for completely covering all open excavations and for accommodating travel when work is not in progress.

B. The length of open trench will be controlled by the particular surrounding conditions but shall always be confined to the limits prescribed by the Engineer.

C. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, then special construction procedures shall be taken, such as limiting the length of trench and prohibiting stocking excavated material in, or adjacent to, the street.

D. All street excavations shall be completely closed at the end of each work day. Backfilling or use of steel plates of adequate strength to carry traffic shall be used.

4. Maintenance of Traffic

A. Unless permission to close the street is received in writing from the proper authority, all demolition debris, excavated materials, and equipment shall be placed so that vehicular and pedestrian traffic may be maintained at all times.

B. For the entire duration of the Project, the Contractor shall maintain open and safe access to the Site as shown on the Contract Drawings.

C. The Contractor shall, at his own expense, provide and erect acceptable barricades, barrier fences, traffic signs, and all other traffic devices not specifically covered in a bid item, to protect the work from traffic, pedestrians, and animals.

D. The Contractor shall furnish all construction signs that are deemed necessary by and in accordance with Part VI of the Manual on Uniform Traffic Control Devices as published by the U.S. Department of Transportation. In addition, the Contractor shall be required to furnish additional special construction warning signs as shown on the Contract Drawings and the Contractor may be required to furnish up to 128 square feet of additional special construction warning signs. Size and exact wording of signs shall be determined by the Engineer during construction.

E. Nothing contained herein shall be construed as relieving the Contractor of any of his responsibilities for protection of persons and property under the terms of the Contract.

F. Conduct operations and removal of debris to ensure minimum interference with the normal use of public ways and other adjacent facilities. Do not close or obstruct traffic ways, streets, adjacent driveways and parking areas, walks or other facilities without the written permission of the Owner and authorities having jurisdiction.

G. The Contractor shall contact the Engineer before starting any work at the work site to review any traffic requirements.

H. Provision shall be made for safe passage at all times for emergency vehicles onto the work site.

5. Care and Protection of Property

A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any

act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be promptly restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, to the satisfaction of the Engineer.

B. The Contractor shall not enter upon nor occupy with personnel, equipment or materials any property outside of the designated Limit of Work, except with the written consent of the property owner or property owner's agent.

C. If any direct or indirect damage is done to public or private property outside of the Limits of Work by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be promptly restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, to the satisfaction of the Engineer. Suitable materials and methods shall be used for such restoration. Restoration of existing property and structures shall be carried out as promptly as practicable and shall not be left until the end of the construction period.

D. For work performed outside the Limit of Work shown on the Contract Drawings, such as public street openings or catch basin protection, existing paved and unpaved surfaces adjacent to the Limit of Work shall be properly maintained and kept constantly in repair by the Contractor. The Contractor shall not use or operate tractors, bulldozers, or other power-operated equipment with treads or wheels which are shaped so as to cut or otherwise damage such surfaces; any damage caused during the construction operations shall be immediately repaired at the Contractor’s expense.

E. All land resources within the project boundaries and outside the limits of permanent work performed under this Contract shall be preserved in their present condition or be restored to a condition by completion of construction at least equal to that which existed prior to work under this Contract.

F. The Contractor shall take care not to harm trees that are not designated for removal. Care shall be taken not to cut tree roots so as to harm the growth of trees to remain. The Contractor shall trim all branches that are liable to damage because of his operations, but in no case shall any tree be trimmed, cut, or removed without prior notification and written permission of the Owner. If the Contractor damages bark, trunk, limbs, and roots and trees not designated for removal, the Contractor shall remove damaged trees, including stump removal, per Section 02230 – Clearing and Grubbing, at no additional cost to the Owner.

6. Protection of Existing Structures and Utilities

A. The Contractor shall assume full responsibility for the protection of all structures and utilities that are not scheduled for demolition and/or removal. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. The Contractor shall repair any damage resulting from his/her operations at his/her expense.

B. The location of existing underground services and utilities shown on the Contract Drawings are based on available records. Although these documents may indicate the approximate location of existing utilities in the vicinity of the work, it is not warranted that all existing utilities and services are shown, nor that indicated locations are correct. The Contractor shall coordinate all work involving utilities and shall verify the existing conditions of the areas in which the work is to be performed. In addition, the Contractor's attention is directed to the fact that there are existing aboveground utilities, at and in the immediate vicinity of the work. The Contractor shall identify all aboveground services prior to commencement of the work, and exercise all necessary precautions to ensure worker and public safety, protection of the utilities not being demolished and compliance with the required utility standards and procedures. Services to all buildings being demolished shall be terminated in accordance with all Federal, State and local codes and all costs or charges resulting from damage thereto shall be paid by the Contractor.

C. The Contractor shall confirm the location of all underground utility services (including existing water services, drain lines, sewers, gas and fuel lines, electrical lines, and communications). The Contractor shall be responsible for having the utility companies locate their respective utilities at and in the vicinity of the site prior to excavating. To satisfy the requirements of Vermont law, Title 30, Chapter 86, and Public Service Board Rule 3.800, the Contractor shall, at least 48 hours, exclusive of Saturdays Sundays and holidays, prior to excavation in the proximity of telephone, gas, cable television, and electric utilities, notify the utilities concerned by calling "DIG SAFE" at telephone number: 1-888-344-7233.

D. The Contractor shall thoroughly inspect each building interior's for incoming utilities to supplement identification of utility services for disconnection.

E. All existing site utilities shall be terminated as shown on the Contract Drawings, described in Section 02222 – Utility Abandonment, and as directed and approved by the Engineer. Some utilities may not be shown on the Contract Drawings and, if encountered, shall be cut and capped as required by the Engineer.

F. Fire hydrants along Clinton Street shall at all times be left clear of obstructions and readily accessible to fire apparatus, and no material or other obstructions shall be placed within ten (10) feet of a fire hydrant. The Contractor shall maintain service and emergency access to all fire hydrants along Clinton Street. Refer to the Contract Drawings for locations of hydrants within the property that will have services cut as part of the utility abandonment work. The Contractor shall coordinate the utility abandonment and demolition work with the Springfield Fire Department.

G. Where possible, Contractor shall use existing pavement within the Limits of Work for storing equipment, materials, and other construction-related activities.

H. All property damaged by the Contractor's operations, outside the Limits of Work shall be restored to a condition at least equal to that in which it was found immediately

before work was begun. Suitable materials and methods shall be used for such restoration.

I. Restoration of existing property and structures, designated not to be demolished, shall be carried out as promptly as practicable and shall not be left until the end of the construction period.

7. Maintenance of Flow

A. All existing drainage facilities outside of the Limits of Work, or shown on the Contract Drawings within the Limits of Work to remain in place, including, but not limited to: catch basins and drainage piping shall be adequately safeguarded so as not to impede drainage or to cause siltation of downstream areas in any manner whatsoever. The Contractor shall install nonwoven geotextile filter fabric traps, as described in Section 01570 – Environmental Protection, at catch basins that may receive runoff from the work area, and as shown on the Contract Drawings, to protect drainage systems from sediment accumulation. If the Contractor damages or impairs any of the aforesaid drainage facilities, he shall repair the same within the same day. The Contractor, Engineer, and Owner shall conduct a pre-demolition inspection of the catch basins to assess sediment accumulation and shall coordinate with the Town of Springfield Department of Public Works (DPW) to clean catch basins, as required, prior to demolition activities.

B. At the conclusion of the work, the Contractor shall remove all silt in drainage structures caused by his operations as described in Section 01740 – Cleaning Up.

C. The Contractor shall maintain flow and keep in operation the fire hydrants for fire suppression purposes, in accordance with Protection and Relocation of Existing Structures and Utilities.

8. Rejected Materials and Defective Work

A. Materials furnished by the Contractor and condemned by the Engineer as unsuitable or not in conformity with the specifications shall forthwith be removed from the work by the Contractor, and shall not be made use of elsewhere in the work.

B. Any errors, defects or omissions in the execution of the work or in the materials furnished by the Contractor, even though they may have been passed or overlooked or have appeared after the completion of the work, discovered at any time before the final payment is made hereunder, shall be forthwith rectified and made good by and at the expense of the Contractor and in a manner satisfactory to the Engineer.

C. The Contractor shall reimburse the Owner for any expense, losses or damages incurred in consequence of any defect, error, omission or act of the Contractor or his employees, as determined by the Engineer, occurring previous to the final payment.

9. Sanitary Regulations

A. Sanitary conveniences for the use of all persons employed on the work, properly screened from public observation, shall be provided in sufficient numbers in such manner and at such locations as may be approved. The contents shall be removed and disposed of in a satisfactory manner as the occasion requires. The Contractor shall rigorously prohibit the committing of nuisances within, on or about the work. Any employees found violating these provisions shall be discharged and not again employed on the work without the written consent of the Engineer. The sanitary conveniences specified above shall be the obligation and responsibility of the Contractor.

B. Use heavy-duty refuse containers with tight-fitting domed lids, with a spring-loaded flap, for disposal of all garbage and trash associated with food. Maintain these containers so there are no openings that allow access by rodents. Refuse containers shall be emptied daily to maintain site sanitation.

C. Do not dispose of food, garbage, or trash associated with food in dumpsters or other containers being utilized for disposal of demolition debris.

D. Maintain the site and its perimeter area free of trash, garbage, debris, and unnecessary or deteriorated hay bales. Provide and enforce proper use of refuse containers to ensure that rodents and other pests are not harbored or attracted.

10. Safety and Health Regulations

A. This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to Vermont's Occupational Safety and Health Administration Standards and Vermont Labor Statutes. Contractors shall be familiar with the requirements of these regulations.

B. The Contractor shall submit to the Owner, the Material Safety Data Sheets for all substances or mixture of substances used on the Project by him/her or his/her subcontractors prior to commencing any work.

C. The Contractor shall take all necessary precautions and provide all necessary safeguards to prevent personal injury and property damage. The Contractor shall provide protection for all persons including, but not limited to, his employees and employees of other contractors or subcontractors; members of the public; and employees, agents, and representatives of the Owner, and regulatory agencies that may be on or about the Work.

D. The Contractor shall comply with all applicable Federal, State and local laws, ordinances, rules and regulations and lawful orders of all authorities having jurisdiction for the safety of persons and protection of property.

E. The Contractor shall designate a responsible member of his organization at the Site whose duty shall be responsible for all matters of safety. This responsible person shall have the authority to take immediate action to correct unsafe or hazardous conditions and to enforce safety precautions and programs.

11. Site Investigation

A. The Contractor acknowledges that he has satisfied himself as to the conditions existing at the Site, the type of equipment required to perform this Work, the quality and quantity of the materials furnished insofar as this information is reasonably ascertainable from an inspection of the Site, as well as from information presented by the Contract Drawings and specifications made a part of this Contract. Any failure of the Contractor to acquaint himself with available information will not relieve him from the responsibility for estimating properly the difficulty or cost of successfully performing the Work. The Owner assumes no responsibility for any conclusion or interpretation made by the Contractor on the basis of the information made available by the Owner.

12. Electric Service

A. The Contractor shall make all necessary applications and arrangements and pay for all fees and charges for electrical energy for power and light necessary for the proper completion of this contract during its entire progress. The Contractor shall provide and pay for all temporary wiring, switches, connections, and meters.

B. There shall be sufficient electric lighting so that all work may be done in a workmanlike manner where there is not sufficient daylight.

C. The Contractor may, at his own expense, utilize temporary generators to provide power needed for abatement and demolition related activities. The Contractor shall provide the Owner with a written plan providing full details on the equipment, operation, noise levels, maintenance, fueling procedures, etc. for review and approval. Generators shall only be utilized on-Site with the written approval of the Owner.

13. Hazardous Waste

A. Should the Contractor, while performing work under this contract, uncover suspected hazardous materials, as defined in Vermont Hazardous Waste Management Regulations, Subchapter 2 of Chapter 7 of the Vermont Environmental Protection Rules, not specified or shown on the Contract Documents, they shall immediately notify the Engineer.

14. Clean-up and Disposal of Excess Material

A. During the course of the Work, the Contractor shall keep the Site in as clean and neat a condition as is possible. The Engineer and the Owner reserve the right to direct Site clean up if deemed necessary. Contractor shall dispose of all debris and residue

resulting from the demolition and construction work and, at the conclusion of the Work, shall remove and haul away any surplus lumber, equipment, temporary structures, excess materials, and any other refuse and debris remaining from the demolition and construction operations per the Contract Documents and shall leave the entire Site in a neat and orderly condition. The Contractor shall not remove excavated material or demolition debris from the Site without the approval of the Engineer.

B. The Contractor shall prevent carry-out or spillage of material from his/her vehicles onto public ways. The Contractor shall promptly clean up and dispose of all material and debris deposited on public ways to the Owner's satisfaction. The Contractor also shall not create conditions that allow silt laden runoff to run onto public ways. Any silt and debris deposited onto public ways by runoff shall be cleaned up to the satisfaction of the Owner and means shall be employed to prevent recurrence of run-off deposits.

C. In order to prevent environmental pollution arising from the demolition and construction activities related to the performance of this Contract, the Contractor shall, and his subcontractors shall, comply with all applicable Federal, State, and local laws and regulations concerning waste material disposal, as well as the specific requirements stated elsewhere in these Specifications.

D. The Contractor is advised that the disposal of excess excavated material in wetlands, stream corridors, and plains is strictly prohibited even if the permission of the property owner is obtained. Any violation of this restriction by the Contractor or any person employed by him will be brought to the immediate attention of the responsible regulatory agencies, with a request that appropriate action be taken against the offending parties. Therefore, the Contractor will be required to remove the material at his own expense and restore the area impacted.

END OF SECTION

SECTION 01140

SPECIAL PROVISIONS

1. Water for Demolition Purposes
2. Occupying Private Property
3. Existing Utility Locations and Dimensions
4. Coordination of Work
5. Time for Completion of Contract
6. Project Signs
7. Compliance with Permits
8. Contractor's Representative
9. Hours of Demolition/Abatement Activity

1. Water for Demolition Purposes

A. The Contractor shall provide water trucks or coordinate with the Town of Springfield Department of Public Works (DPW) and Fire Department for use of a nearby hydrant as a temporary service for demolition activities, including dust control and asbestos abatement. Refer to Section 00890 - Permits for additional requirements regarding hydrant usage. The Contractor shall install temporary water lines with backflow preventers, as required, to provide water for demolition activities, and shall provide protection for the hydrant. Backflow preventers are to be inspected and approved by the DPW prior to: (1) installation; and (2) use. Hydrants shall at all times be left clear of obstructions and readily accessible to fire apparatus, and no material or other obstructions shall be placed within ten (10) feet of a hydrant. The Contractor shall maintain service and emergency access to the hydrant within the Limit of Work until all buildings within the Limit of Work are demolished, as described in Specification Section 02220. Refer to the Contract Drawings for location of nearby hydrants. The Contractor shall coordinate the demolition work with the DPW and Fire Department. Beyond the applicable Town of Springfield DPW permit/set-up fees, there will be no charge for the water usage; however, waste of water by the Contractor shall be sufficient cause for withdrawing the privilege of unrestricted use.

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B. To use available water supplies other than the on-Site hydrant, the Contractor shall make arrangements with the DPW or, alternatively, the Contractor may arrange for water trucks to provide water for use during abatement and demolition activities.

C. The express approval of the Owner shall be obtained before water is used.

2. Occupying Private Property

The Contractor shall not enter upon nor occupy with men, equipment or materials any property outside of the Limits of Work shown on the Contract Drawings, except with the written consent of the property owner or property owner's agent.

3. Existing Utility Locations and Dimensions

A. The location of existing underground services and utilities shown on the Contract Drawings is based on available records. It is not warranted that all existing utilities and services are shown, nor that shown locations are correct. The Contractor shall be responsible for having the utility companies locate their respective utilities on the ground prior to excavating.

B. To satisfy the requirements of Vermont Statutes, Title 30, Chapter 86, the Contractor shall, at least 48 hours, exclusive of Saturdays Sundays and holidays, prior to excavation in the proximity of telephone, gas, cable television and electric utilities, notify the utilities concerned by calling "DIG SAFE" at telephone number: 1-888-344-7233.

C. The Contractor shall coordinate all work involving utilities and shall satisfy himself as to the existing conditions of the areas in which he is to perform his work. He shall conduct and arrange his work so as not to impede or interfere with the work of other contractors working in the same or adjacent areas.

D. Where the dimensions and locations of existing structures and pipes are of importance for any part of the Work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment that is dependent on the correctness of such information

E. Up to 50 cubic yards of test pits for the purpose of locating underground pipelines or structures shall be excavated and backfilled by the Contractor at the direction of the Engineer at no additional cost to the Owner. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Engineer.

4. Coordination of Work

A. The General Contractor shall be responsible for coordinating his own work as well as that of any subcontractors. He shall be responsible for notification of the Engineer when each phase of work is expected to begin and the approximate completion date.

B. The sequence and phasing of work shall be as described in Section 01014 – Scope and Sequence of Work.

5. Time for Completion of Contract

The time for Substantial and Final Completion of this Contract is stipulated in the Contract Agreement section of this document. The Bidder shall base his bid on completing the proposed work by the Final Completion date stipulated in the Contract section of this document.

6. Project Signs

A. The project signs shall be as specified in Supplemental General Conditions. Prior to project sign fabrication, the Contractor shall submit a draft template of the project sign to the Engineer for approval of the layout and wording. See Specification Section 01550 – Signage (Traffic Control), Section 02051 – Asbestos Abatement (for asbestos related signage), Section 02281 – Chain Link Fence and Sheet D-1 (for PCB signs) of the Contract Drawings for additional sign requirements.

B. The project signs shall be erected within ten (10) days after the construction contract is awarded. The project signs shall be fabricated, erected, and maintained by the Contractor.

C. The Contractor shall provide adequate support for the signs as determined by the Engineer.

D. The project signs shall be maintained by the Contractor in good condition at all times for the duration of construction. The Contractor shall remove the signs upon completion of construction.

7. Compliance with Permits

A. The Contractor shall perform all work in conformance with requirements of the Permits, which appear in Section 00890 - Permits.

8. Contractor's Representative

The Contractor shall designate a representative who will be available to respond to emergency calls by the Owner at any time day and night and on weekends and holidays should such a situation arise.

9. Hours of Demolition/Abatement Activity

A. The Contractor shall conduct all construction activity between 7:00 a.m. and 5:00 p.m., Monday through Friday. No construction work shall be allowed on Saturdays, Sundays or Holidays without written authorization from the Owner.

B. The Contractor shall limit all construction-related trucking (which shall mean all trucking of construction materials and demolition debris by vehicles over 18,000 pounds GVW) to and from the Site to the hours of 7:00 a.m. to 5:00 p.m. Monday through Friday, except holidays and to the Town of Springfield’s regulations.

END OF SECTION

SECTION 01270

MEASUREMENT AND PAYMENT

1. GENERAL

A. The following sections describe the measurement and payment for the work to be done under the respective items listed in the FORM FOR GENERAL BID.

B. All work performed as described in these contract documents shall be paid for under one or more of the items listed in the FORM FOR GENERAL BID. All other activities required in connection with performance of the work, including all work required under Division 1, GENERAL REQUIREMENTS, whether described in the contract documents or mandated by applicable codes, permits and laws, will not be separately paid for unless specifically provided for in the FORM FOR GENERAL BID, but will be considered incidental to performance of the overall project.

C. Each unit or lump sum price stated in the FORM FOR GENERAL BID shall constitute full compensation as herein specified for each item of work completed in accordance with the Drawings and specifications.

D. The payment items listed herein and in the FORM FOR GENERAL BID are intended to provide full payment for the work shown on the drawings and specified herein. Any work called for or implied in the documents but not listed as a payment item shall be considered incidental to the overall project.

E. Unless otherwise noted, each item specified or shown on the drawings shall be furnished and installed in accordance with the technical section whether a specific applicable payment item exists or not.

F. The price for all items involving excavation shall constitute full compensation for each payment item including: support of excavation (per Section 02252 – SUPPORT OF EXCAVATION).

2. ITEM 1 – MISCELLANEOUS SITE WORK

A. The lump sum price for Item 1 shall constitute full compensation for furnishing all labor, material, tools, and equipment necessary for mobilization/demobilization and to complete Site preparation and miscellaneous Site work as described in and required by the Contract Documents including, but not limited to: all permits and approvals required to complete Work, all submittals/plans, temporary facilities, temporary utility connection and use, constructing and maintaining chain link fencing (and mesh fabric) and gates, installing and maintaining environmental protection controls, clearing and grubbing within the Limits of Work as specified, signage/traffic control, project signs, dust/air monitoring, odor and noise control, catch basin inlet protection, rodent control, preparing and implementing a

health and safety plan, dewatering/groundwater management activities including treatment system installation and operation (as required), installation of temporary driveway, preparing and submitting As-Built Documents, cleaning up, and all other work shown on the Drawings and called for in the specifications, except for the work included in Item 2.

B. The work of this section shall be paid at the Contract price under Item 1 - "Miscellaneous Site Work".

3. ITEM 2 – BUILDING DEMOLITION/BULK LOAD-OUT

A. The lump sum price for Item 2 shall constitute full compensation for furnishing all labor, materials, tools and equipment to bulk load-out and dispose of buildings identified on the Contact Drawings, down to the concrete floor, with the exception of sections to remain, indicated in the Contract Documents. The lump sum price for Item 2 shall include installing the PCB protection layer during demolition and bulk load-out activities and disposal of the PCB protection layer and debris beneath the protection layer as a dual ACM/PCB waste. The lump sum price for Item 2 shall also include the backfill of all trenches, sumps and pits with Class B backfill to match the surrounding slab-on-grade elevation and the installation of the PCB Cap after demolition activities per Section 02220 – Demolition.

B. The lump sum price for Item 2 shall also include demolition and removal of all adjacent site features and ancillary structures per Section 02220 – Demolition, and associated site work as shown on the Drawings and called for in the specifications.

C. The work of this section shall be paid at the Contract price under Item 2 - "Building Demolition/Bulk Load-out".

END OF SECTION

SECTION 01300

CONSTRUCTION MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section specifies requirements for project meetings including but not limited to Pre-Construction Conference and Progress Meetings.

B. It shall be the responsibility of the Contractor to coordinate work between all subcontractors, sections, and trades required for the proper completion of the Work.

1.02 PRE-CONSTRUCTION CONFERENCE

A. After the bids have been opened but prior to the start of the construction there will be a pre-construction conference to discuss the phasing and scheduling of the Project. The specific time and place of the conference shall be arranged by the Engineer after the Contract has been awarded.

B. This pre-construction conference is intended to establish lines of communication between the parties involved, review responsibilities and personnel assignments, establish project schedules, discuss proposed performance methods, and coordinate Work to be performed by subcontractors.

C. Authorized representatives of the Owner, Engineer and their consultants, the Contractor, its Superintendent and Site Foreman, and all others invited by the Contractor, shall attend the pre-construction conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

D. Discuss items of significance at the pre-construction conference that could affect progress including at least the following:

1. Tentative construction schedule
2. Critical Work sequencing
3. Designation of responsible personnel
4. Procedures for processing field decisions and Change Orders
5. Procedures for processing Applications for Payment
6. Distribution of Contract Documents
7. Submittal of Shop Drawings, Product Data and Samples
8. Preparation of record documents

9. Use of the premises
10. Office, work and storage areas
11. Equipment deliveries
12. Construction safety procedures
13. Environmental health and safety procedures
14. First aid
15. Security
16. Housekeeping
17. Working hours

1.03 PROGRESS MEETINGS

A. During the course of the Project, the Contractor shall attend weekly progress meetings as scheduled by the Owner. The Owner, based on work progress and activities, may adjust the progress meetings to biweekly or other. The attendance of subcontractors may be required during the progress of the Work. The Contractor's delegate to the meeting shall be prepared and authorized to discuss the following items:

1. Progress of Work/Critical Work Sequencing in relation to Contract Schedule.
2. Proposed Work activities for forthcoming period.
3. Resources committed to Contract.
4. Coordination of Work with others.
5. Status of procurement of equipment and materials.
6. Status of Submittals.
7. Outstanding actions, decisions, or approvals that affect Work activities.
8. Site access and/or security issues
9. Hazards and risks
10. Housekeeping
11. Quality issues
12. Potential Claims
13. Change Orders
14. Costs, budget, and payment requests

B. The Contractor shall revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized and the revised schedule shall be submitted to the Engineer and Owner.

END OF SECTION

SECTION 01310

CONSTRUCTION SCHEDULING

PART 1- GENERAL

1.01 DESCRIPTION

A. The Contractor shall be responsible for scheduling activities and the activities of any subcontractors involved, to meet the completion date, or milestones, established for the Contract. Scheduling of the work shall be coordinated with the Owner and Engineer.

B. A construction schedule shall be used to control the work of this Contract and to provide a definitive basis for determining job progress. The construction schedule and updates shall be prepared by the Contractor and coordinated with the Engineer and Owner. All work shall be done in accordance with the established schedule and the Contractor and the Contractor's subcontractors shall be responsible for cooperating fully with the Engineer and the Owner in effectively utilizing the schedule.

C. The Contractor shall submit a schedule for approval by the Engineer prior to initiation of work. The schedule shall consist of a Gantt Chart showing the sequence of work described in Section 01014 – Scope and Sequence of Work. The schedule shall include, but not be limited to, the following: permitting, submittal preparation, site mobilization, site work (see Section 01014 – Scope and Sequence of Work), project closeout, and demobilization.

1.02 SUBMITTALS

A. Prior to performing any work at the Site, the Contractor shall submit a detailed schedule to the Engineer and Owner for review.

B. The schedule shall be updated by the Contractor on a biweekly basis and submitted to the Engineer and Owner for review.

1.03 RESPONSIBILITY FOR SCHEDULE COMPLIANCE

A. Whenever it becomes apparent from the current schedule that delays have resulted and the Contract completion date will not be met the Contractor shall take some or all of the following actions at no additional cost to the Owner. The Contractor shall submit to the Engineer for approval, a written statement of the steps the Contractor intends to take to remove or arrest the delay to the critical path in the approved schedule.

1. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of Work.

2. Increase the number of working hours per shift, shifts per day, working days per week, the amount of construction equipment, or any combination of the foregoing, sufficiently to substantially eliminate the backlog of work.

3. Reschedule activities to achieve maximum practical concurrency of accomplishment of activities and comply with the revised schedule.

B. If when so requested by the Engineer, the Contractor should fail to submit a written statement of the steps he intends to take or should fail to take such steps as approve by the Engineer, the Engineer may direct the Contractor to increase the level of effort in man-power (trades), equipment and work schedule (overtime, weekend and holiday work, etc) to be employed by the Contractor in order to remove or arrest the delay to the critical path in the approved schedule and the Contractor shall promptly provide such level of effort at no additional cost to the Owner.

END OF SECTION

SECTION 01330

SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The Contractor shall provide the Engineer with submittals as required by the contract documents.

1.02 RELATED WORK:

A. Divisions 1 – 13 of these specifications that require submittals.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.01 GENERAL:

A. As required by the General Conditions, Contractor shall submit a schedule of shop and working drawing submittals.

B. The Contractor shall submit the shop and working drawing submittals either electronically or hard copy.

3.02 ELECTRONIC SUBMITTALS:

A. In accordance with the accepted schedule, the Contractor shall submit promptly to the Engineer by email (larosas@wseinc.com) or on Compact Disc (mail to Weston & Sampson Engineers, 98 So. Main Street, Waterbury, VT 05676 attention: Steven LaRosa), one electronic copy in Portable Document Format (PDF) of shop or working drawings required as noted in the specifications, of equipment, structural details and materials fabricated especially for this Contract.

B. Each electronic copy of the shop or working drawing shall be accompanied by the Engineer's standard shop drawing transmittal form, included as Exhibit 1 of this section (use only for electronic submittals), on which is a list of the drawings, descriptions and numbers and the names of the Owner, Project, Contractor and building, equipment or structure.

C. The Contractor shall receive a shop drawing memorandum with the Engineer's approval or comments via email.

3.03 HARD COPY SUBMITTALS:

A. In accordance with the accepted schedule, the Contractor shall submit promptly to the Engineer, by mail (to Weston & Sampson Engineers, attention: Steven LaRosa, Weston & Sampson Engineers, 98 So. Main Street, Waterbury, VT 05676, six (6) copies each of shop or working drawings required as noted in the specifications, of equipment, structural details and materials fabricated especially for this Contract.

B. Each shipment of drawings shall be accompanied by the Engineer's (if applicable) standard shop drawing transmittal form on which is a list of the drawings, descriptions and numbers and the names of the Owner, Project, Contractor and building, equipment or structure.

3.04 SHOP AND WORKING DRAWINGS:

A. Shop and working drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish of shop coat, grease fittings, etc., depending on the subject of the drawings. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for this Contract.

B. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from the Contractor's subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24-inch by 36-inch sheets, except those, which are made by changing existing standard shop or working drawings. All drawings shall be clearly marked with the names of the Owner, Project, Contractor and building, equipment or structure to which the drawing applies, and shall be suitably numbered. Each shipment of drawings shall be accompanied by the Engineer's (if applicable) standard shop drawing transmittal form on which is a list of the drawings, descriptions and numbers and the names mentioned above.

C. Only drawings that have been prepared, checked and corrected by the fabricator should be submitted to the Contractor by the Contractor's subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings that the subject matter thereof conforms to the Contract Documents in all respects. Shop drawings shall be reviewed and marked with the date, checker's name and indication of the Contractor's approval, and only then shall be submitted to the Engineer. Shop drawings unsatisfactory to the Contractor shall be returned directly to their source for correction, without submittal to the Engineer. Shop drawings submitted to the Engineer without the Contractor's approval stamp and signature will be rejected. Any deviation from the Contract Documents indicated on the shop drawings must be identified on the drawings and in a separate submittal to the Engineer.

D. The Contractor shall be responsible for the prompt submittal and resubmittal, as necessary, of all shop and working drawings so that there will be no delay in the work due to the absence of such drawings.

E. The Engineer will review the shop and working drawings as to their general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections of comments made on the drawings during the review do not relieve the Contractor from compliance with requirements of the Contract Documents. The Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating work with that of all other trades; and performing work in a safe and satisfactory manner. The review of the shop drawings is general and shall not relieve the Contractor of the responsibility for details of design, dimensions, code compliance, etc., necessary for interfacing with other components, proper fitting and construction of the work required by the Contract and for achieving the specified performance. The Engineer will review submittals two times: once upon original submission and a second time if the Engineer requires a revision or corrections. The Contractor shall reimburse the Owner amounts charged to the Owner by the Engineer for performing any review of a submittal for the third time or greater.

F. With few exceptions, shop drawings will be reviewed and returned to the Contractor within 30 days of submittal.

G. No material or equipment shall be purchased or fabricated especially for this Contract nor shall the Contractor proceed with any portion of the work, the design and details of which are dependent upon the design and details of equipment or other features for which review is required, until the required shop and working drawings have been submitted and reviewed by the Engineer as to their general conformance and compliance with the project and its Contract Documents. All materials and work involved in the construction shall then be as represented by said drawings.

H. Two copies of the shop and working drawings and/or catalog cuts will be returned to the Contractor. The Contractor shall furnish additional copies of such drawings or catalog cuts when he needs more than two copies or when so requested.

3.05 SAMPLES:

A. Samples specified in individual Sections include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols, and units of work to be used by the Engineer or the Owner for independent inspection and testing, as applicable to the work.

B. The number of samples submitted shall be as specified. Submittal and processing of samples shall follow the procedures outlined for shop and working drawings unless the specifications call for a field submittal or mock-up.

C. Acceptance of samples will be acknowledged via a copy of the transmittal noting status. When samples are not acceptable, prompt resubmittal will be required.

END OF SECTION

EXHIBIT 1 TO SECTION 01330 SUBMITTALS

SHOP DRAWING TRANSMITTAL FORM

02/08/2012

Shop Drawing Transmittal

Weston&Sampson
ENGINEERS, INC.

Instructions for Preparing Transmittal

No action will be taken on any item unless accompanied by this form.
Type or print all entries.

TRANSMITTAL NOS. to be consecutive (1, 2, 3, etc.).
Each resubmittal of same item shall use same number with suffix letter (A, B, etc.).

SPEC. SECT. NO: Only one spec. section no. to each transmittal.

DESCRIPTION: Complete identification of document or group of documents.

SOURCE: Originator of document(s) being submitted.

DRAWING NO: Identification of document(s).

NO. of COPIES: Usually 6 or as directed/specified.

CONTRACT DRAWING REFERENCE: Contract drawing number(s) showing details of document(s) being submitted.

SPECIAL INSTRUCTIONS: Special cases and emergencies, changes in distribution and special handling requests, etc. should be entered here.

SIGNATURE OF CONTRACTOR: Signature of individual who reviews and approves material prior to submittal to engineer.

Contractor to retain last copy. Submit original with two pink and two yellow copies.

THIS SECTION TO BE COMPLETED BY CONTRACTOR

TRANSM. NO.	SPEC. SECT. NO.	DATE / /	CONTRACTOR'S JOB NO.	W&S JOB NO.

PROJECT NAME & CONTRACT NO.	LOCATION

TO	FROM
Attention: CSD Weston & Sampson Engineers, Inc. 5 Centennial Drive Peabody, MA 01960-7985	(CONTRACTOR)

ITEM NO.	DESCRIPTION	SOURCE	DRAWING NO. CATALOG NO. BROCHURE, ETC.	NO. OF COPIES	CONTRACT DRAWING REF.	BY W&S ACTION CODE	BY W&S REVIEWED BY
1							
2							
3							
4							

THIS CERTIFIES THAT ALL ITEMS SUBMITTED HEREWITH HAVE BEEN CHECKED BY THE CONTRACTOR, ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, EXCEPT AS NOTED, AND ARE APPROVED BY THE CONTRACTOR FOR THIS PROJECT.

SPECIAL INSTRUCTIONS:	(FOR CONTRACTOR) SIGNATURE & TITLE:

THIS SECTION TO BE COMPLETED BY W&S

ACTION CODE
1. NO EXCEPTIONS TAKEN
2. MAKE CORRECTIONS NOTED
3. AMEND AND RESUBMIT
4. REJECTED - SEE REMARKS
5. ACKNOWLEDGMENT

a. INSTALLATION SHALL PROCEED ONLY WHEN ACTION CODE IS 1 or 2.

b. ACTION CODED 3 SHALL BE RESUBMITTED WITHIN TIME LIMIT SET IN CONTRACT.

c. REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY OF COMPLIANCE WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

FIELD OFFICE
REC'D BY
DATE / /

Weston&Sampson
ENGINEERS, INC.

BY _____ DATE / /

Please! **BEAR DOWN WHEN HANDWRITING — THIS IS A 6 COPY FORM & THE LAST COPY IS YOURS!**

01330-6

SECTION 01370

SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Provide Schedule of Values covering each bid item.

B. Related Sections:

1. Section 01270 – MEASUREMENT AND PAYMENT
2. Section 01330 – SUBMITTALS

1.02 SUBMITTALS:

A. Submit the following in accordance with Section 01330 - SUBMITTALS:

1. Schedule of Values.

a. Submit draft Schedule of Values within 5 days of the Notice to Proceed (NTP).

b. Revise and resubmit Schedule of Values until acceptable to the Engineer.

2. Itemize separate line item cost for work comprising each lump sum bid item:

a. Ensure that the sum of the items listed in the Schedule of Values for each lump sum item equals the price bid for the respective lump sum item.

3. Work requiring verification of proper disposal

a. A separate line item shall be included for any items requiring documentation of proper legal disposal. Payment shall be withheld pending submission of required documentation (e.g., certified weight slips and signed disposal documentation).

4. Schedule of Values shall include an item for Close-Out Documentation & Reports

5. An unbalanced Schedule of Values providing for overpayment on items of work performed first will not be accepted.

1.03 SEQUENCING AND SCHEDULING:

A. Before submitting any application for payment, obtain the Engineer's approval of the Schedule of Values.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01380

HEALTH AND SAFETY PLAN

PART 1 – GENERAL

1.01 DESCRIPTION:

A. Prior to the start of work on the site, Contractor shall prepare and submit a site-specific Health and Safety Plan that includes consideration of all known and potential hazards at the site. Work may not proceed at the project site until the Contractor's health and safety plan has been received and reviewed by the Engineer.

B. In addition to addressing health and safety issues associated with abatement of asbestos containing materials and building demolition, the Health and Safety Plan and related items of this Section are also to address general demolition and construction activities required under this Contract. Refer to and coordinate with Section 02051 – Asbestos Abatement, Section 02075 - Universal and Hazardous Waste, Section 02220 – Demolition, Section 02300 – Earthwork, Section 13282 – Lead Containing Paint Handling, and the Contract Drawings for additional elements and requirements to be included in the Contractor's Health and Safety Plan.

C. The following items are addressed in this Section.

1. Preparation of a Site-Specific Health and Safety Plan

2. Personal Protective Equipment

3. Logs, Reports, and Recordkeeping

D. The Contractor is advised that polychlorinated biphenyls (PCBs) are also present at the site at the levels and locations shown on Sheet C-2 of the Contract Drawings. In addition, asbestos-containing materials and miscellaneous oil & hazardous materials have been detected in the buildings. See Section 02051 – Asbestos Abatement and Section 02075 - Universal and Hazardous Waste for additional information.

1.02 PREPARATION OF A SITE-SPECIFIC HEALTH AND SAFETY PLAN:

A. Prior to the start of work on the Site, and no later than 15 calendar days after the date of the Notice to Proceed, Contractor shall prepare and submit an initial Site-specific Health and Safety Plan which includes consideration of all known and potential hazards at the Site. Work may not proceed at the project Site until the Contractor's Health and Safety Plan has been received by Engineer.

B. Site-specific health and safety procedures as specified herein are required due to potentially hazardous conditions that may be encountered during handling, sampling, treatment, removal and disposal of contaminated and/or hazardous material. These

procedures shall be described in the Health and Safety Plan prepared by the Contractor. The Health and Safety Plan shall be submitted to the Engineer for review, before any work can be initiated. The Contractor is responsible for its workers' and Subcontractors' health and safety and the monitoring and control of dust and odor migration from the Site. Therefore, the Engineer will only review the Contractor's Health and Safety Plan for relevant content. The Contractor shall implement, maintain, and enforce these procedures during all phases of the Work associated with the description of work described in this Section.

C. It is the responsibility of the Contractor to implement engineering controls, at no additional cost to the Owner, to control and reduce fugitive air emissions, noise, and odors that exceed nuisance levels as specified in the Contract Documents.

D. This Section describes the minimum health and safety requirements during completion of the Site work. The Contractor shall develop a detailed Health and Safety Plan based on all applicable regulations. The Health and Safety Plan must establish in detail the protocols necessary for protecting workers, on-Site personnel, visitors and potential off-Site receptors from potential hazards that may be encountered during remediation activities.

E. The Health and Safety Plan shall include Site access provisions that effectively limit access to work areas to only those persons in full compliance with the requirements of the Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120 and Vermont's Occupational Safety and Health Administration Standards.

F. The Contractor's Health and Safety Plan shall include a detailed description of the method of operations to be implemented during construction activities.

G. The Contractor shall conduct an initial Site survey to determine the appropriate safety procedures and level of worker safety equipment. The Contractor's Site Safety and Health Officer (SSHO) shall be present on-Site throughout the duration of the Contract, shall be fully qualified and experienced to conduct his/her duties, and shall maintain a continuous hazardous materials health and safety monitoring program throughout the performance of the work associated with the Site remediation work. It shall be the SSHO's responsibility to notify the Engineer of any deviations in the hazardous materials health and safety-monitoring program.

H. It shall be the Contractor's responsibility to notify the Engineer orally and in writing as quickly as possible should any unforeseen safety hazard or condition become evident during the performance of the work. In the interim, the Contractor shall take prudent action to establish and maintain safe working conditions and to safeguard employees, the public, and the environment.

I. Any disregard for the provisions of these Specifications shall be deemed just and sufficient cause for the termination of the Contractor or any lower-tier subcontractor without compromise or prejudice to the rights of the Contractor or subcontractor.

J. Contractor shall be cognizant of the minimum health and safety plan standards set forth in 29 CFR 1910.120 and 29 CFR 1926. The Health and Safety Plan shall include, but not be limited to, the following minimum requirements:

1. Identification of the Contractor's General Supervisor, Site Safety and Health Officer, and other personnel needed for hazardous waste site operations and emergency response and their general functions and responsibilities.

2. Lines of authority, responsibility, and communication associated with personnel identified in paragraph 1.03 K.1.

3. Copies of 40-hour OSHA HAZWOPER training, Confined Space training, and 10-hour OSHA construction safety training certificates, including most current refresher session certificates if applicable, for all personnel that will be involved in the activities for which such training is required.

4. Comprehensive work plan that addresses the tasks and objectives of the project, including associated logistics and resources.

5. Identification and analysis of the hazards and risks associated with each task/operation of the project.

6. Contractor's standard operating procedures, including personnel training and field orientation information.

7. Procedures for determining appropriate levels of protection and equipment selection.

8. Identification of personal protective equipment (including respiratory protection equipment) to be used during each task/operation of the project (see Paragraph 1.04 for additional information).

9. Contractor's medical surveillance program.

10. Personal hygiene requirements and guidelines for project personnel.

11. Project Site zone delineation.

12. Site security and entry control procedures.

13. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques to be used (including methods for maintenance and calibration of monitoring and sampling equipment). The Dust Control and Monitoring Plan shall be referenced.

14. Decontamination procedures (see Specification Section 01570 – Environmental Protection and Section 02220 – Demolition for additional information).

15. Contingency and emergency response plans and procedures.

16. List of emergency contacts (including names, addresses, and telephone numbers).

17. Confined Space Entry Procedures.

18. Procedures for minimizing electrical hazards and risks posed by overhead wires.

19. Methods and responsibility for updating the Health and Safety Plan, as necessary.

20. Spill Containment Program – Develop, submit for Engineers review, and implement an Oil and Hazardous Materials Management and Spill Control Program (OHM Program) to address inventory, storage, and on-site handling of oil and hazardous materials, risk mitigation measures, and spill control and reporting procedures that will be implemented by the Contractor during construction. The OHM Program shall include complete descriptions of all methods, procedures, and Best Management Practices (BMP) proposed to insure compliance with appropriate environmental requirements of the Owner, the Vermont Department of Environmental Conservation (DEC), the U.S. Environmental Protection Agency, and all others having jurisdiction.

21. Provisions for Pre-Entry Initial and Periodic Briefings.

1.03 PERSONAL PROTECTIVE EQUIPMENT:

A. The personal protective equipment required to provide the appropriate level of dermal and respiratory protection shall be determined based on the results of continuous air monitoring performed by the Contractor and the standards set forth in the Contractor 's Health and Safety Plan. The Engineer may conduct duplicate air monitoring for quality control purposes. Modified Level D protection shall be the minimum requirement for all on-Site personnel, except during asbestos abatement activities, when higher levels of protection will be required, as specified in Section 02051 – Asbestos Abatement.

B. Personal protective equipment shall be provided and properly disposed of at the expense of the Contractor.

C. The Contractor shall be responsible for monitoring of dust and air as discussed in Section 01562 - Dust Control.

1.04 LOGS, REPORTS, AND RECORDKEEPING:

A. The Contractor shall maintain daily logs covering the implementation of the Health and Safety Plan. Contractor shall provide Engineer with copies of all logs and reports on a weekly basis.

B. Daily Safety Logs shall include, at a minimum, the following:

1. Date
2. Area (Site specific) checked
3. Employees in a particular area
4. Site visitors, name, affiliation, and purpose of Site visit
5. Equipment being utilized by employees
6. Protective clothing being worn by employees
7. Protective devices being used by:
   a. Contractor's Personnel
   b. Visitors
   c. Designated State and Federal Representatives
8. Air and Dust Monitoring Data including description of area being monitored, equipment used, and readings taken.
9. Site Safety and Health Officer signature and date.

C. Employer Obligation: The Contractor shall be solely responsible for compliance with Vermont's Occupational Safety and Health Administration Standards and all Federal laws such as OSHA (29 CFR) which require chemical exposure records and medical records be maintained by employer for a specified length of time after the termination of the job.

1.05 EQUIPMENT DECONTAMINATION:

A. Construction equipment, tools and appliances used during the Work shall be decontaminated, as applicable.

B. All vehicle containers shall be carefully loaded to avoid contamination of exterior surfaces. In addition, all vehicles and equipment used during the handling of contaminated material and/or hazardous chemicals and materials shall be decontaminated prior to leaving the site. Procedures for vehicle and equipment decontamination shall be submitted as part of the Health and Safety Plan. The Contractor shall be responsible for assuring that each vehicle is properly decontaminated prior to exiting the Site.

PART 2 - PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities including: electricity, lighting for construction purposes, water service and sanitary facilities.

B. Construction Facilities including: parking, progress cleaning and waste removal, and project identification.

C. Temporary Controls including: barriers, fencing and removal of utilities, facilities and controls.

1.02 TEMPORARY ELECTRICITY

A. Provide and pay for power service required from utility source as needed for construction operation. Contractor may elect to utilize generators as long as their use does not cause excess noise (see Paragraph 1.03 below) or odorous fugitive emissions as to disturb neighbors. The temporary electrical service/panel, as required, shall be installed at a location approved by the Engineer and Owner. See additional electrical service requirements in Section 01110 – Control of Work and Materials.

1.03 NOISE LEVEL REQUIREMENTS:

A. In accordance with the U.S. Environmental Protection Agency's (EPA's) Principles for Greener Cleanups, the Contractor shall minimize noise disturbances. When available, the Contractor shall make the maximum use of "low-noise-emission products" as certified by EPA. All equipment utilized by the Contractor shall conform to the noise control requirements of Vermont Department of Environmental Conservation (DEC), Town of Springfield and the noise control requirements identified below. If noise level requirements vary, the most stringent requirement shall apply. The Contractor shall construct sound enclosures or utilize other noise reduction techniques if the equipment does not meet the noise level requirements.

B. Equipment to be employed on this Site shall not produce a noise level exceeding the following limits in dB(a) at a distance of 50 feet from the equipment under test. (GSA permissible noise levels).

Equipment

Earthmoving		Earthmoving	
front loader	75	scrapers	80
backhoes	75	graders	75
dozers	75	truck	75
tractors	75	paver	80
Materials Handling		Stationary	
concrete mixer	75	pumps	75
concrete pump	75	generators	75
crane	75	compressors	75
derrick	75		
Impact		Other	
jack hammers	75	saws	75
rock drills	80	vibrators	75
pneumatic tools	80		
pile driver	95		

C. The Contractor shall comply with all applicable Federal, State and local Laws, Ordinances and Regulations relative to noise control. (See especially OSHA "Occupational Noise Exposure", 1910.95.)

D. In addition to the provisions of the preceding paragraphs, sound levels for noise monitored at the building line of structures affected acoustically by the Contractor's operations and plant:

1. Sound levels for non-scheduled = intermittent, short term noise for mobile equipment shall not exceed the following:

   Daily, including Sundays and Legal Holidays, all hours, a maximum of 85 dB(A).

   Sound level limits for repetitively scheduled and relatively long term noise from stationary equipment shall not exceed the following:

   Daily, including Sundays and Legal Holidays, all hours, a maximum of 70 dB(A).

E. The Contractor shall provide such equipment, sound-deadening devices, and take such noise abatement measures that are necessary to comply with the requirements of this Contract, consisting of, but not limited to the following:

1. Shields or other physical barriers to restrict the transmission of noise.

2. Soundproof housings or enclosures for noise production machinery.

3. Efficient silencers on air intakes of equipment.

4. Efficient intake and exhaust mufflers on internal combustion engines.

5. Conducting truck loading, unloading and hauling operations so that noise is kept to a minimum.

6. Routing of equipment and vehicles over streets that will cause the least disturbance to residents in the vicinity of the work.

7. Siting of stationary equipment shall be subject to the approval of the Engineer.

F. Where field sound measurements reveal sound levels exceeding those listed above, the Contractor shall cease operating such equipment and shall either repair it or replace it with equipment complying with these sound levels.

1.04 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. There shall be sufficient electric lighting so that all work may be done in a workmanlike manner where there is not sufficient daylight, the Contractor shall:

1. Provide and maintain lighting for construction operations.

2. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

3. Maintain lighting and provide routine repairs.

B. In accordance with the EPA's Principles for Greener Cleanups, the Contractor shall minimize lighting disturbances and energy consumption, as appropriate.

1.05 TEMPORARY WATER SERVICE

A. The Contractor shall provide, maintain and pay for suitable quality water service required for construction operations as specified herein and the Contract Drawings. The Contractor shall provide water for demolition purposes as specified in Section 01140 – Special Provisions and the Contract Drawings. The Contractor shall be responsible to coordinate, permit and supply water at the Site and pay for all permits, meters and water used on the Site.

1.06 TEMPORARY SANITARY FACILITIES

A. The Contractor shall provide and maintain required sanitary facilities as specified in Section 01110 – Control of Work and Materials. The Contractor shall provide facilities at the time of Project mobilization and remove facilities at the end of work.

1.07 FENCING

A. The Contractor shall install chain link fencing as shown on the Contract Drawings and as specified in Section 02821- Chain Link Fence to protect safety of workers and prevent trespass onto the Site by unauthorized persons.

B. All excavated materials and demolition debris handled and stockpiled at the Site shall be secured within the Limits of Work inside the chain link fencing at all times.

1.08 TEMPORARY FIELD OFFICE TRAILERS

A. The Contractor shall provide a construction trailer to be used as the Site Project Trailer, in good condition, in a location approved by the Owner and Engineer. The Site Project Trailer shall be as specified below and, at a minimum, be 10-feet by 40-feet with two (2) separate office areas partitioned accordingly to achieve space separation. The Contractor shall provide a separate construction trailer to be used by the Contractor and Subcontractors at a location approved by the Engineer and Owner.

B. The contractor and his subcontractor(s) shall maintain such office(s) with sanitary, storage and telephone facilities for the work of the Contract.

C. The Contractor shall provide a construction trailer, in good condition, in a location approved by the Owner and Engineer, for the use of the Owner, Engineer, and Engineer's Subconsultants, and accessible at all times to the Owner, the Engineer and their authorized representatives.

D. The trailer shall be adequately heated, air conditioned, lighted, and locked, with the following furniture and equipment, in good condition, and which shall remain the property of the Contractor at the completion of his work:

1. Two desks and three chairs.
2. One table at least 30"x72"
3. Four drawer metal file cabinet with lock and key.
4. One conference table (a minimum of 96" long) with 8 chairs.
5. One bottled water machine, and water replacements as necessary, with built-in refrigerator.

6. One multi-function printer, copier, scanner with USB cable and wireless connection and all related printing supplies such as toner and paper. Unit shall be HP LaserJet Pro M130NW or equal.

Pay all costs for the furnishing, maintaining, cleaning and operation of the office. Remove the same at completion and authorized by the Owner.

Pay all costs and make all connections for electrical services.

E. Upon completion of the Work, or as directed by the Owner, the Contractor shall remove any temporary structures and facilities from the Site, same to become his property, and leave the premises in a condition satisfactory to the Engineer.

END OF SECTION

SECTION 01550

SIGNAGE (TRAFFIC CONTROL)

PART 1 - GENERAL

1.01 DESCRIPTION:

This Section provides information and defines specific requirements of the Contractor to adequately control general and work site traffic to insure safe and reasonable access around and to the site area, and to furnish and install traffic control signs and other devices.

1.02 RELATED WORK:

A. Special Conditions
B. Section 01014 – Scope and Sequence of Work
C. Section 01110 – Control of Work and Materials
D. Section 01140 – Special Provisions
E. Section 01562 – Dust Control
F. Section 01570 – Environmental Protection
G. Section 02051 – Asbestos Abatement
H. Section 02220 – Demolition
I. Section 02281 – Chain Link Fence

1.03 TRAFFIC CONTROL PLAN:

A. The Contractor shall submit a Traffic Control Plan for review/approval by the Engineer prior to initiating activities that would affect traffic and within 15 days after the Notice to Proceed. The Traffic Control Plan shall describe and illustrate traffic flow/routes to and from the Site during the duration of work and clearly indicate access/egress locations, stockpile locations, Contractor storage areas, and excavation areas. Locations, wording, and size of signs shall be as specified herein and shown on the Contract Drawings and coordinated with Owner and Engineer as part of the Traffic Control Plan.

B. The Contractor shall be responsible for informing all individuals comprising his workforce at the Site of access, circulation, and other relevant elements and requirements of the Plan.

C. For the entire duration of the Project, the Contractor shall maintain open and safe access to the Site as described and shown on the Contract Drawings.

1.04 TRAFFIC CONTROL DEVICES:

A. The Contractor shall be responsible for furnishing, installing, and, for the duration of the Contract, maintaining pedestrian and traffic management control devices necessary to identify, establish, and manage project vehicles and equipment, general traffic, and pedestrians. These shall include those traffic control devices as necessary to afford

adequate protection to the traveling public and to implement and carry out the requirements of this Section and the Contract Drawings.

B. See Sheet D-1 of the Contract Drawings, Section 01140 – Special Provisions, Section 02051 – Asbestos Abatement, and Section 02281 – Chain Link Fence for additional construction signage requirements. Locations, wording, and size of signs shall be coordinated with Owner and Engineer after the Contract is awarded and as part of the Traffic Control Plan submittal (see Paragraph 1.03.A of this Section).

1.05 TRUCKING ROUTE:

A. The Contractor shall control the routing of his hauling vehicles serving the Site to the designated truck route, as indicated on the Contract Drawings. The designated truck route shall be as follows:

1. All hauling vehicles/trucks shall follow Clinton Street/Route 11, to Route 11/US-5 to I-91. Hauling vehicles/trucks shall not be permitted on residential streets and neighborhoods.

Contractor's vehicles coming to/from the Site are limited exclusively to the designated routes.

B. Should variation in routing be necessary, such variation must be approved in advance and in writing, by the Town of Springfield.

1.06 WORKFORCE ACCESS AND PARKING:

A. Workforce vehicular site access shall be via the designated truck routes for the project. No on street parking of the commercial vehicles of the Contractor or the private vehicles of the workforce beyond the Property limits is permitted.

PART 3 - EXECUTION

3.01 GENERAL:

A. Contractor shall erect traffic signs, and other traffic control devices as required by the Manual on Uniform Traffic Control Devices (MUTCD) as published by the U.S. Department of Transportation, this Section, and the Contract Drawings, or as directed by the Engineer, to provide traffic safety and convenience, and to protect the work area from traffic, pedestrians, and animals.

B. When the work has been completed, unless otherwise directed by the Engineer, all traffic devices used by the Contractor shall be removed.

C. Contractor shall relocate barricades, signs and other devices as necessary as the work progresses.

D. Unless permission to close the street is received in writing from the proper authority, all excavated materials and equipment shall be placed so that vehicular and pedestrian traffic may be maintained at all times.

E. Conduct operations and removal of debris to ensure minimum interference with the operations of the surrounding community and the normal use of public ways and other adjacent facilities. Do not close or obstruct traffic ways, streets, walks or other facilities without the written permission of the Owner and authorities having jurisdiction.

F. Provision shall be made for safe passage at all times for emergency vehicles onto the work site.

END OF SECTION

SECTION 01562

DUST CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION:

A. This Section specifies requirements for controlling and monitoring dust generated during work of this Contract. Work activities requiring special attention to dust control include demolition, excavating, stockpiling, loading and removal of material from the Site, and earthwork. Due to known contamination at the Site, dust generated during the course of the Work must be controlled and kept on-Site. See Specification Section 02051 – Asbestos Abatement for air monitoring requirements during asbestos abatement activities.

B. The Contractor is responsible for control of dust at all times during work of this Contract, 24 hours per day, 7 days per week, including non-working hours, weekends, and holidays.

C. During the progress of the Work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. The Contractor shall conduct dust monitoring to ensure dust is being controlled at the Site. If dust emissions exceed action levels described in Paragraph 1.05 of this Section, or determined to be a nuisance by the Engineer (e.g., dust clouds from work areas), the Contractor shall be responsible for implementing additional engineering controls (e.g. additional dust suppression agents), as directed by the Engineer and described in this Section at no additional cost to the Owner. The Engineer may perform dust monitoring for confirmation purposes.

D. The Contractor shall conform to air monitoring action levels specified in Section 13282 – Lead Containing Paint Handling, as required.

E. The Contractor is responsible for daily clean-up of public roadways, adjacent driveways/parking lots, and walkways affected by work of this Contract. A wet spray power vacuum street sweeper shall be used on pavement, as required. Dry power sweeping is prohibited.

1.02 RELATED WORK:

A. Section 01140 – Special Provisions
B. Section 01380 – Health and Safety Plan
C. Section 01570 – Environmental Protection
D. Section 02051 – Asbestos Abatement
E. Section 02220 - Demolition
F. Section 02240 - Dewatering

G. Section 02300 – Earthwork
H. Section 02821 –Chain Link Fence
I. Section 13282 – Lead Containing Paint Handling

1.03 REGULATORY REQUIREMENTS:

A. Work of this Contract shall be conducted in a manner that will not result in excessive particulate matter emissions, nuisance dust conditions, PM_{10} (particulate matter with an aerodynamic diameter less than or equal to 10 microns) emissions or PM_{10} concentrations exceeding the National Ambient Air Quality Standard of 150 $\mu g/m^3$ on 24-hour average basis.

1.04 SUBMITTALS:

A. Contractor shall submit a Dust Control Plan that outlines, in detail, the means and measures that will be implemented to comply with this Section, including dust suppression (e.g. calcium chloride, water, wind screens and barriers), prevention, cleanup, and other measures. The Dust Control Plan shall be submitted to the Engineer within 14 days after issuance of the Notice to Proceed.

B. Contractor shall submit to the Engineer product literature and Material Safety Data Sheets for any dust suppression wetting agents and stabilizers prior to use.

C. Contractor shall submit the data collected from the air monitor (Mini Ram monitor or approved equivalent) electronically to the Engineer on a weekly basis, including data from all air monitors, daily averages and daily high readings. The Contractor shall note daily site conditions contributing to elevated readings (e.g. high winds, etc.).

1.05 DUST MONITORING:

A. The Contractor shall produce the Dust Control Plan, which will ensure appropriate monitoring for the safety of passersby and the surrounding areas during the course of the Contract.

The Engineer may conduct air monitoring with a Mini RAM monitor, or equivalent, to ensure dust is being controlled at the Site. During the course of the Work, the Contractor shall be responsible for implementing engineering controls (e.g., wetting, calcium chloride) to minimize or eliminate fugitive dust emissions. If dust exceeds action levels described below, the Contractor shall be responsible for implementing additional engineering controls (e.g. additional dust suppression agents, wind screens), as directed by the Engineer. If additional wet suppression (water) and/or wind screens, barriers, or covers are required per the Engineer based on air/dust monitoring results, they shall be at no additional cost to the Owner.

During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust.

The Contractor shall monitor for dust in ambient air using Mini Ram monitors, with continuous data loggers, or equivalent. At a minimum, one (1) dust monitor shall be located on the downwind side of the area in which the Contractor is performing demolition/excavation work. If the Dust Action Level is exceeded due to the creation and dispersion of dust by Contractor's activities (as determined by the Engineer) additional dust suppression controls shall be implemented as specified herein, at no additional cost to the Owner. If the Dust Action Level is exceeded after the implementation of additional dust suppression controls, additional dust monitors at the perimeter of the Limits of Work, as described below, shall be implemented by the Contractor to monitor dust at no additional cost to the Owner. Additional dust monitoring shall be performed at the perimeter of the Limits of Work at a minimum of upwind, downwind and crosswind perimeter locations (minimum of three locations) and in the area of demolition/excavation at the Site.

B. The Dust Control Plan shall use the following action level for implementation of dust suppression controls and increased personal protective equipment:

Dust Action Level: 150 micrograms per cubic meter ($\mu g/m^3$)

PART 2 - PRODUCTS

2.01 DUST SUPPRESSION AGENTS:

A. Dust suppression wetting agents shall be water soluble, non-toxic, non-reactive, non-volatile, and non foaming.

1. Calcium Chloride

A. Calcium chloride shall conform to the requirements of AASHTO-M 144, Type I or Type II and Specification for Calcium Chloride, ASTM D98. The calcium chloride shall be packaged in moisture proof bags or in airtight drums with the manufacturer, name of product, net weight, and percentage of calcium chloride guaranteed by the manufacturer legibly marked on each container.

B. Calcium chloride failing to meet the requirements of the aforementioned specifications or that which has become caked or sticky in shipment, may be rejected by the Engineer.

2. Water

A. Water shall not be brackish and shall be free from oil, acid, and injurious alkali or vegetable matter.

2.02 BARRIERS, SCREENS, AND COVERS:

A. Mesh Fabric/Wind screens shall be a durable fabric mesh of 50 percent porosity, attached to the temporary chain link fence and permanent chain link fence to be installed as shown on the Contract Drawings and specified in Section 02821 –Chain Link Fence.

B. Wind barriers, if required, shall be solid wood fences or solid durable fabric, attached to Site's temporary chain link fence, or other solid barriers intended to block the passage of wind.

C. Covers for stockpiles shall be polyethylene sheeting as described in Section 02220 – Demolition and Section 02051 – Asbestos Abatement.

PART 3 - EXECUTION

3.01 CONSTRUCTION SITE DUST CONTROL – GENERAL:

A. Wet suppression shall be used to provide temporary control of dust. Several applications per day may be necessary to control dust depending upon meteorological conditions and work activity. The Contractor shall apply wet suppression on a routine basis as necessary or directed by the Engineer, to control dust.

1. Wet suppression consists of the application of water or a wetting agent in solution with water. Ensure wetting agent is not used on plantable soils.

2. Wet suppression equipment shall consist of nozzle-equipped spray bar, sprinkler pipelines, pressure gauge, tanks, tank trucks, or other devices capable of providing regulated flow, uniform spray, and positive shut-off.

The Contractor shall provide the necessary means to retain, on-Site, all water runoff generated by dust control and dispose of such water as specified in Section 02240 - Dewatering and in accordance with the requirements of the appropriate regulatory agencies. The Contractor shall use extra care to minimize water flowing across Restricted Zone areas of the buildings, as shown on the Contract Drawings, due to the contaminated concrete floor slabs.

The Contractor shall be responsible for providing water (refer to Section 01140 – Special Provisions), a means of treatment/disposal, necessary permits, and all appurtenances required to control dust.

B. Calcium chloride shall be applied when ordered by the Engineer and only in areas which will not be adversely affected by the application. See Section 01570 – Environmental Protection.

C. Calcium chloride shall be used to control dust instead of wet suppression when freezing conditions exist. Calcium chloride shall be uniformly applied by a mechanical spreader

at 1 ½ pounds per square yard, unless otherwise directed by the Engineer. Ensure vegetation or soil to be used for vegetation is not treated.

D. The use of petroleum products for dust suppression is prohibited in this Contract.

E. Provide wind screens and wind barriers, if required (see Paragraph 1.05 of this Section), in locations where they would be effective in minimizing wind erosion and spread of dust. The Contractor shall keep wind screens and barriers in good repair for the life of the Contract.

F. Provide access to Mini Ram monitors, or approved equivalent, for Engineer to perform inspection of dust readings. Submit daily logs per Paragraph 1.04.C.

3.02 PUBLIC ROADWAY DUST CONTROL:

A. Vehicles leaving the Site shall not carry out mud or dirt from the Site on the vehicle body or wheels. Any foreign matter on the vehicle body or wheels shall be physically removed prior to vehicle's entering of a public roadway. Contractor shall not permit any truck to leave the Site with exterior mud or dirt that has the potential to be deposited on public roadways. Refer also to Section 01570 – Environmental Protection for equipment and vehicle decontamination requirements.

B. Vehicle mud and dirt carryout, material spills, and soil wash-out onto public roadways and walkways and other paved areas shall be cleaned up immediately.

C. Haul truck cargo areas shall be securely covered during material transport on public roadways.

D. The Contractor is responsible for daily clean-up of public roadways and walkways affected by work of this Contract. A wet spray power vacuum street sweeper shall be used on paved roadway. Dry power sweeping is prohibited. Costs associated with cleaning/sweeping of public roadways is considered incidental to the Project.

3.03 CONTROL OF EARTHWORK DUST:

A. During batch drop operations (i.e., earthwork with front-end loader, clamshell bucket, or backhoe) the free drop height of excavated or aggregate material shall be reduced as much as practical to minimize the generation of dust.

B. To prevent spills during transport, freeboard space shall be maintained between the material load and the top of the truck cargo bed rail.

3.04 CONTROL OF STOCKPILE DUST:

A. At a minimum the Contractor shall use the following methods to control dust and wind erosion of active and inactive stockpiles:

1. Polyethylene tarps on stockpiles shall be placed both below and on top of stockpiles, and secured with sandbags or an equivalent method to prevent the cover from being dislodged by the wind. The Contractor shall repair or replace covers whenever damaged or dislodged, at no additional cost to the Owner.

2. The tarps shall be bermed 12" high at all edges to prevent any infiltration of storm water or exfiltration of leachate.

B. The methods to be used shall be submitted to the Engineer as part of the Dust Control Plan. Refer to the requirements of Section 02220 – Demolition and Section 02051 – Asbestos Abatement for additional information related to stockpiled demolition debris and excavated materials.

3.05 DEBRIS AND DEMOLITION DUST CONTROL MEASURES:

A. The Contractor shall use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in the air to the lowest practical level. Sufficient water shall be supplied for the demolition-related debris to meet Federal, State, and local air-quality regulations and to minimize dust during demolition and debris handling. See Paragraph 3.01.A of this section for the collection and disposal of water used during dust control activities.

B. Debris may be stockpiled but must be done in accordance with Section 02220 – Demolition.

C. During transport of debris, the truck cargo area shall be securely covered.

D. Removal of asbestos-containing material shall be in accordance with Section 02051 – Asbestos Abatement.

END OF SECTION

SECTION 01570

ENVIRONMENTAL PROTECTION

1. Description
2. Notification
3. Implementation
4. Area of Construction Activity
5. Protection of Water Resources
6. Protecting and Minimizing Exposed Areas
7. Location of Storage Areas
8. Protection of Landscape
9. Clearing and Grubbing
10. Discharge of Dewatering Operations
11. Dust Control
12. Erosion and Sediment Controls
13. Baled Hay or Straw
14. Silt Fence
15. Noise Control
16. Waste
17. Equipment and Vehicle Decontamination

1. Description

The work covered by this Section of the Specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.

2. Notification

The Engineer will notify the Contractor in writing of any non-compliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Engineer may order stoppage of all or part of the work until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

3. Implementation

A. Prior to commencement of work, the Contractor shall meet with representatives of the Engineer to develop mutual understandings relative to compliance of the environmental protection program.

B. The Contractor shall submit for approval six sets of details and literature fully describing environmental protection methods to be employed in carrying out construction activities.

4. Area of Construction Activity

A. Insofar as possible, the Contractor shall confine his construction activities to those areas defined by the Contract Drawings and Specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract. The Contractor shall keep the streets clear of debris, equipment and vehicles at all times for Fire Department access.

B. The Contractor shall keep vehicles, equipment, and staging areas on existing paved areas on the Site as much as possible to minimize unnecessary soil and habitat disturbance or destruction in accordance with the U.S. Environmental Protection Agency's (EPA's) Principles for Greener Cleanups.

5. Protection of Water Resources and Erosion and Sediment Controls

A. The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acids or other harmful materials. The Contractor shall also prevent the transport of soil, dirt, and salt to surface streams, wetlands, and/or catch basins. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.

B. Special measures should be taken to insure against spillage of any pollutants into public waters, and run-off of demolition site sediments into stormwater collection systems. Measures shall include catch basin protection and placement of hay bales and silt fences along fencing, as specified herein and indicated on the Contract Drawings.

C. Catch basins shall be protected as specified in Section 01110 – Control of Work and Materials and as shown on the Contract Documents with a nonwoven geotextile filter fabric trap as described in this Section and shown on the Contract Drawings, and as approved by the Engineer. The Contractor, Engineer, and Owner shall conduct a pre-demolition inspection of the catch basins to assess sediment accumulation and shall coordinate with the Town of Springfield Public Works Department (PWD) to clean catch basins, as required, prior to demolition activities.

D. The Contractor is responsible for maintaining flow into each catch basin shown to be protected on the Contract Documents to prevent ponding/flooding. The Contractor shall clean filter fabric by removing accumulated material, as needed. Removed material shall be stockpiled and disposed of by the Contractor at no additional cost to the Owner.

E. The filter drainage fabric shall be composed of continuous-filament fibers bonded together to form a sheet. The fabric shall be an average of 20 mils thick and possess the characteristic of Mirafi 140 N.

6. Protecting and Minimizing Exposed Areas

A. The Contractor shall limit the area of land which is exposed and free from vegetation during construction. In areas where the period of exposure will be greater than two (2) months, temporary vegetation, mulching or other protective measures shall be provided as specified.

B. The Contractor shall take account of the conditions of the soil where temporary cover crop will be used to insure that materials used for temporary vegetation are adaptive to the sediment control. Materials to be used for temporary vegetation shall be approved by the Engineer.

7. Location of Storage Areas

A. The location of the Contractor's storage areas for equipment and/or materials shall be upon existing paved areas on the Site as much as possible to minimize unnecessary soil and habitat disturbance or destruction in accordance with the U.S. Environmental Protection Agency's (EPA's) Principles for Greener Cleanups. All storage areas for equipment and/or materials shall require written approval of the Engineer. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Engineer. Refer to Section 01110 – Control of Work and Materials for additional requirements for the hauling, handling, and storage of materials.

B. No excavated materials or materials used in backfill operations shall be deposited within a minimum distance of fifty (50) feet of any watercourse. Adequate measures for erosion and sediment control (polyethylene sheeting on stockpiles, the placement of baled hay or straw around the downstream perimeter of stockpiles, etc.) shall be employed to protect any downstream areas from siltation.

C. There shall be no storage of equipment or materials in areas designated on the Contract Drawings as the 100-foot wetlands buffer zone.

D. The Engineer may designate a particular area or areas where the Contractor may store materials used in his operations.

8. Protection of Landscape

A. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them within the Limit of Work, unless shown on the Contract Drawings, and described in Section 02230 – Clearing and Grubbing, without written authority from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically authorized by the Engineer. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees which are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use. If the Contractor damages trees not designated for removal, the Contractor shall restore damaged trees as nearly as possible to its original condition at the expense of the Contractor. The Engineer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under the provisions of Section 02230 - Clearing and Grubbing.

B. Branches, limbs, and roots shall not be cut except by permission of the Engineer. All cutting shall be smoothly and neatly done without splitting or crushing. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed by the Engineer.

C. Where, in the opinion of the Engineer, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or other operations, the Engineer may direct the Contractor to adequately protect such trees by placing boards, planks, poles or fencing around them. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations that is not designated for removal on the Contract Drawings shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Engineer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under the provisions of Section 02230 - Clearing and Grubbing.

9. Clearing and Grubbing

A. The Contractor shall clear and grub shrubs and trees within the Limit of Work as required for demolition per the Contract Drawings and as described in Section 02230 – Clearing and Grubbing.

10. Discharge of Dewatering Operations

A. Any water that is pumped from the building and/or excavations as part of the Contractor's water handling, including water that collects on-Site during a storm event, shall be as specified in Section 02240 – Dewatering and in accordance with applicable Federal, State and local environmental regulations and permits. Any water that is pumped and discharged into the sewer system shall receive prior approval from the Town of Springfield's WWTF as specified in Section 00890 – Permits and Section

02240 – Dewatering. The Contractor shall perform the required sampling and analysis of the pumped water/dewatering effluent in accordance with the applicable discharge permit(s) and submit the laboratory results to the Engineer.

B. Under no circumstances shall the Contractor discharge water to the areas designated as wetlands.

C. Any damage caused by or resulting from dewatering operations shall be the sole responsibility of the Contractor.

11. Dust Control

A. During the progress of the Work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust in accordance with Section 01562 - Dust Control. If dust exceeds action levels provided in Section 01562- Dust Control, the Contractor shall be responsible for implementing additional engineering controls (e.g. additional dust suppression agent, etc.) as described in Section 01562 - Dust Control, at no additional cost to the Owner.

B. Calcium Chloride shall not be used for dust control in the vicinity of any source of potable water.

12. Erosion and Sediment Controls

A. Erosion and sediment controls shall be installed as shown on the Contract Drawings and specified herein. This shall include catch basin protection, hay bales and silt fencing, and any additional measures that may be required or as determined by the Engineer. Erosion and sediment control measures shall be furnished, installed, maintained and replaced by the Contractor as needed to ensure that sediment laden water/surface runoff does not leave the Limits of Work.

B. The Contractor also shall not create conditions that allow silt laden runoff to run onto public ways. Any silt and debris deposited onto public ways by runoff shall be cleaned up to the satisfaction of the Owner and means shall be employed to prevent recurrence of run-off deposits at no additional cost to the Owner.

13. Baled Hay or Straw

A. To trap sediment and to prevent sediment from clogging drainage systems, baled hay or straw shall be used where shown on the Contract Drawings. Care shall be taken to keep the bales from breaking apart. The bales should be securely staked to prevent overturning, flotation, or displacement. All deposited sediment shall be removed periodically.

14. Silt Fence

A. Where indicated on the Contract Drawings or where directed by the Engineer, the Contractor shall erect and maintain a temporary silt fence. In areas designated as wetlands, the Contractor shall line the limits of the construction easement with a silt fence. The silt fence shall be used specifically to contain sediment from runoff water and to minimize environmental damage caused by construction.

B. The silt fence shall consist of a 3-foot wide continuous length sediment control fabric, stitched to a 22-foot wide, continuous length support netting, and stapled to preweathered oak posts installed as shown on the drawings. The oak posts shall be 1½-inches by 1½-inches (Minimum Dimension) by 48 inches and shall be tapered. The support netting shall be industrial strength polypropylene. The bottom edge of the sediment control fabric shall be buried as shown on the drawings. The sediment control fabric shall conform to the following properties:

Property	Value	Test Method
1. Grab Strength (lbs.)	124	ASTM D-4632
2. Elongation (%)	15%	ASTM D-4632
3. Puncture Strength (lbs.)	65	ASTM D-4833
4. Burst Strength (psi)	300	ASTM D-3786
5. Trapezoid Tear (lbs.)	60	ASTM D-4533
6. Equivalent Opening Size (U.S. Sieve)	No. 30	ASTM D-4571
7. Permittivity (sec^{-1})	0.10	ASTM D-4491
8. Water Flow Rate (gal/min/sf.)	10	ASTM D-4491
9. UV Resistance (%)	70	ASTM D-4355

C. The silt fence shall be Mirafi Envirofence manufactured by Mirafi, Inc. or approved equal.

15. Noise Control

A. The Contractor shall make special provisions to prevent excessive noise during demolition, remediation, and construction. No heavy demolition and construction equipment or large engine vehicle shall be allowed to operate on the Site between the hours of 7 PM and 7 AM, unless special permission is granted by the Owner. Temporary noise barriers shall be erected by the Contractor at the direction of the Engineer if the noise level at the perimeter of the Site is determined as excessive. Refer to Specification Section 01500 – Temporary Facilities and Controls for noise control requirements.

B. In accordance with the U.S. Environmental Protection Agency's (EPA's) Principles for Greener Cleanups, the Contractor shall minimize noise disturbances. When available, make the maximum use of "low-noise-emission products" as certified by EPA. No blasting or use of explosives is permitted.

C. Protect employees against noise exposure in accordance with the requirements of the Occupational Safety and Health Act of 1972.

D. Compliance with the requirements of this Section will not offer any relief from responsibility for compliance with local ordinances, regulations, and other Sections.

E. Compliance with the requirements of this Section will require the use of machines with effective mufflers or enclosures and selection of quieter alternative procedures.

F. Unless otherwise indicated, all noise level limits are measured 50 feet from the equipment producing said noise.

16. Waste

A. All rubbish and surplus material shall be handled and disposed of in accordance with all Federal, State, and local requirements.

B. Provide rubbish and garbage containers at several locations throughout the Site. Empty containers at regular intervals to avoid overfilling.

C. Provide temporary chemical toilets and periodically empty wastes according to all Federal, State, and local regulations.

D. Conduct fueling and lubricating of equipment and motor vehicles in a manner that affords the maximum protection against spills and evaporation. Dispose of lubricants to be discarded and excess oil in accordance with approved procedures meeting Federal, State and local regulations.

E. See Section 01740 – Cleaning Up for additional waste/clean-up requirements.

17. Equipment and Vehicle Decontamination

A. Vehicles leaving the Site, or leaving an off-Site temporary storage location, shall not carry out mud or dirt from the Site on the vehicle body or wheels. Any foreign matter on the vehicle body or wheels shall be physically removed prior to vehicle's entering of a public roadway. Contractor shall not permit any truck to leave the Site with exterior mud or dirt that has the potential to be deposited on public roadways. Contractor shall be responsible for assuring that each vehicle is properly decontaminated prior to exiting the Site. The Contractor shall prevent carry-out or spillage of material from his/her vehicles onto public ways. The Contractor shall promptly clean up and dispose of all material and debris deposited on public ways to the Owner's satisfaction. If vehicles track mud and dirt off-site, the Contractor shall be responsible for additional engineering controls such as wheel washing at no extra cost to the Owner. The Contractor shall be responsible for collecting all wash water and sediment, as required, at no additional cost to the Owner. The Contractor shall ensure that material hauling vehicles remain on paved surfaces as much as possible.

B. Vehicle mud and dirt carryout, material spills, and soil wash-out onto public roadways and walkways and other paved areas shall be cleaned up immediately by the Contractor at no additional expense to the Owner. The Contractor also shall not create conditions that

allow silt laden runoff to run onto public ways. Any silt and debris deposited onto public ways by runoff shall be cleaned up to the satisfaction of the Owner and means shall be employed to prevent recurrence of run-off deposits at no additional expense to the Owner.

C. Haul truck cargo areas shall be securely covered during material transport on public roadways.

D. The Contractor is responsible for daily clean-up of public roadways and walkways affected by work of this Contract. A wet spray power vacuum street sweeper shall be used on paved roadway, as required. Dry power sweeping is prohibited. Costs associated with cleaning/sweeping of public roadways is considered incidental to the Project.

E. Construction equipment, tools and appliances used during the Work shall also be decontaminated. Mud, dirt, and any other foreign matter shall be physically removed from equipment and tools prior to being removed from the Site and disposed of off-Site per applicable regulations.

F. All vehicle containers shall be carefully loaded to avoid contamination of exterior surfaces. In addition, all vehicles and equipment used during the handling of contaminated material and/or hazardous chemicals and materials shall be decontaminated prior to leaving the Site. Procedures for vehicle and equipment decontamination shall be submitted as part of the Health and Safety Plan (Specification Section 01380). The Contractor shall be responsible for assuring that each vehicle is properly decontaminated prior to exiting the Site. See Section 02051 – Asbestos Abatement and the Contract Drawings for additional details.

G. Refer to Specification Section 02220 – Demolition and the Contract Drawings for additional requirements for vehicles, machines, and equipment within the buildings around Restricted Zones (i.e. PCB contaminated concrete floor slabs).

END OF SECTION

SECTION 01577

PEST CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section specifies requirements for pest control activities by the Contractor at all work and laydown (or staging) areas in connection with this Contract. The Contractor shall perform the work of this Section to ensure that rodents (rats and mice) and other pests, including pigeons, do not infest or disperse from the Site. The pest control work is to be performed prior to any demolition work and throughout the duration of the Contract.

B. The Contractor shall develop and implement an integrated pest management approach. As part of that approach, the Contractor shall maintain a cooperative dialogue with appropriate agencies and management representatives of neighboring properties.

C. The Contractor shall retain the services of a licensed pest exterminator to conduct an inspection of the work and laydown areas and report on the presence of rodents and other pests (e.g. pigeons) and take any necessary measures to eliminate existing pest populations prior to start of work. Upon completion of pest extermination work, the Contractor shall submit to the Engineer and Owner a work receipt from the licensed pest exterminator.

D. Perform all work in conformance with the requirements of these Specifications and the regulations of the U.S. Environmental Protection Agency.

1.02 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. Within fifteen (15) days after Notice to Proceed, submit to the Engineer a written description of pest control measures to be used and the areas to be included in the program. Such description shall present results of the inspection and shall indicate materials, quantities, methods, and time schedule associated with the proposed pest control procedures; it shall also present a written description of the sanitation procedures to be used. The Pest Control Plan shall have both the Engineer's and the Owner's approvals prior to implementation.

B. Provide the name and background of the licensed pest exterminator retained to provide any necessary pest eradication measures prior to start of work.

C. The Contractor shall submit to the Engineer weekly data sheets with identification of locations treated, amounts and types of rodenticide used, survey and inspection results, sanitation conditions, complaint calls investigated, and any problems that occurred.

1.03 LIABILITY:

A. Perform this work in such a manner that toxicants or other control tools do not pose a hazard to persons, domestic animals, or non-target wildlife. Maintain liability insurance for this work.

PART 2 - PRODUCTS

2.01 CONTAINERS:

Use metal or heavy-duty plastic refuse containers with tight-fitting lids for disposal of all garbage, or trash associated with food. These containers shall not have openings that allow access by rodents.

PART 3 - EXECUTION

3.01 WORK AND LAYDOWN AREAS WITHIN THE CONTRACT AREA:

A. Before mobilization begins, obtain written verification from the pest exterminator that pest populations have been effectively controlled in areas to be occupied.

B. Following site clearing and before demolition, excavation, or construction, inspect work and laydown areas and remove all remaining trash and debris.

C. Maintain work and laydown areas free of trash, garbage, weeds, and debris. Provide and enforce proper use of refuse containers to ensure that rodents and other pests are not harbored or attracted.

D. Designate specific locations as lunch and coffee break areas to prevent random disposal of garbage and trash. Keep those areas free of litter and garbage, and provide refuse containers as described in 2.01 of this Section. Keep refuse containers upright with their lids shut tight.

E. Have all refuse containers emptied daily to maintain site sanitation.

F. Notify the Engineer within 24 hours whenever rodents (rats or mice) or signs of rodent activity (burrows or droppings) are observed in work or laydown areas. Take appropriate action to locate and control the rodents.

3.02 COMPLAINT CALLS:

A. During all work under this Contract, respond to pest-related complaints from the adjacent neighborhoods within 24 hours when directed by the Engineer. Inspect the particular premises and adjacent areas for sanitation and structural deficiencies and also signs of historic and recent pest activity. Provide sanitation and structural maintenance information to the property owner or manager. Place bait, traps, or other pesticides as necessary to resolve the complaint when there is a relationship between the pest infestation and demolition activities, or when directed by the Engineer.

B. Maintain records of all complaints, including location, contact person, inspection results, and actions taken. Document the relatedness of the pest infestation to the demolition operations.

END OF SECTION

SECTION 01740

CLEANING UP

1. DESCRIPTION:

A. The Contractor should be familiar with the General Conditions, Special Conditions, Section 01110 – Control of Work and Materials, Section 01140 – Special Provisions, Section 01562 – Dust Control, and Section 01570 – Environmental Protection as they pertain to this Section.

B. The Contractor must employ at all times during the progress of his work adequate cleanup measures and safety precautions to prevent injuries to persons or damage to property. The Contractor shall immediately, upon direction by the Engineer provide adequate material, equipment and labor to cleanup and make safe any and all areas deemed necessary by the Engineer.

2. DAILY CLEANUP:

A. The Contractor shall clean up, at least daily, all refuse, rubbish, scrap and surplus material, debris and unneeded construction equipment resulting from the construction operations and sweep the area. The site of the work and the adjacent areas affected thereby shall at all times present a neat, orderly and workmanlike appearance.

B. Upon written notification by the Engineer, the Contractor shall within 24 hours clean up those areas, which in the Engineer's opinion are in violation of this Section and the above referenced Sections of the Specifications.

C. If in the opinion of the Engineer, the referenced areas are not satisfactorily cleaned up, all other work on the Project shall stop until the cleanup is satisfactory.

3. MATERIAL OR DEBRIS IN DRAINAGE FACILITIES:

A. Where material or debris has washed or flowed into or has been placed in existing watercourses, ditches, gutters, drains, pipes, structures, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the Work, and the ditches, channels, drains, pipes, structures, and work shall, upon completion of the Work, be left in a clean and neat condition.

4. REMOVAL OF TEMPORARY BUILDINGS, STRUCTURES AND EQUIPMENT:

A. On or before completion of the Work, the Contractor shall, unless otherwise specifically directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools and

machinery or other construction equipment furnished by him; shall remove all rubbish from any grounds which he has occupied; shall remove silt traps used for trapping sediment in catch basins; and shall leave the roads and all parts of the property and adjacent properties affected by his operations in a neat and satisfactory condition.

5. RESTORATION OF DAMAGED PROPERTY:

A. The Contractor shall restore or replace, when and as directed, any property damaged by his work, equipment or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary driveway, pavement, and sidewalk restoration work, and landscaping work, as indicated in these Specifications and on the Contract Drawings. Materials, equipment, and methods for such restoration shall be as approved by the Engineer.

6. FINAL CLEANUP:

A. Before acceptance by the Owner, the Contractor shall perform a final cleanup to bring the construction site to its original or specified condition. This cleanup shall include removing waste and surplus materials, all trash and debris off of the premises. Before acceptance, the condition of the Site shall be approved by the Engineer.

END OF SECTION

SECTION 01770

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers administrative and procedural requirements for closing out the project, including, but not limited to:

1. Project As-Built Documents with Global Positioning System (GPS) coordinates of all utility termination locations (precision within 1-foot +/-).
2. Checkout and Certification
3. Final Cleaning
4. Closeout Procedures
5. Final Completion
6. Correction/Warranty Period

B. Closeout checklist to be completed by the Engineer.

1.02 RELATED SECTIONS:

A. General Requirements in their entirety.

B. Division 2 through Division 13.

1.03 AS-BUILT DOCUMENTS:

A. The Contractor shall maintain on Site, separate from the documents used for construction, one set of the documents listed below, and as construction progresses, shall legibly record on these documents all changes made during construction.

1. Contract Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other Modifications to the Contract.
5. Reviewed shop drawings, product data, and samples.
6. Written interpretations and clarifications.
7. Field Orders.
8. Field test reports properly verified.

B. The completed set of As-Built Documents shall be submitted to the Engineer with the final Application for Payment. As-built documents shall include GPS coordinates, including depths below grade, for all utility cuts/caps/abandonment locations. Utility terminations to be shown with GPS coordinates on the As-Built Documents include, but not be limited to,

the locations of all: cut and capped water lines, sewers, and drains. Refer to Section 02222 – Utility Abandonment and the Contract Drawings.

C. As-built documents shall also include the temporary driveway location, PCB capped areas and chain link fence locations. Refer to Section 02220 – Demolition, Section 02821 – Chain Link Fence, and the Contract Drawings.

1.04 CHECKOUT AND CERTIFICATIONS:

A. Prior to checkout and certifications the following tasks shall be completed:

1. Construction shall be complete. For this purpose, completion of construction is defined as follows:

a. The Contractor has completed asbestos abatement, building demolition, utility abandonment/demolition, and site work in conformance with the Contract Drawings and Specifications.

2. All shop drawings shall have final approval.

3. All sampling test results, if required, submitted to the Engineer.

1.05 FINAL CLEANING:

A. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.

1. Clean the area, including landscape development areas of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved or planted, to smooth, even textured surfaces.

2. Remove waste and surplus materials, rubbish, fencing, equipment, temporary utilities and construction facilities from the site, unless otherwise directed by the Engineer.

1.06 CLOSEOUT PROCEDURES:

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and is complete in accordance with Contract Documents and ready for Engineer's and Owner's inspection.

B. Accompany Engineer and Owner on inspection to verify conformance with the Contract Documents. Prepare a punch list of work items that have been determined by inspection to not conform with Contract Documents. Punch list items shall include work items that are missing, incomplete, damaged, incorrect items, or improperly installed or constructed. The Contractor shall correct the punch list deficiencies by re-work, modifications, or replacement, as appropriate, until the items conform to the Contract Documents. The

initial punch list shall be produced by the Contractor, with copies to the Engineer and Owner. When the Contractor has reduced the number of deficient items to a reasonable level, the Engineer will develop a definitive punch list for the use of the Contractor.

C. Provide submittals to Engineer that are required by governing or other authorities.

D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due. The Contractor shall submit the following documents with or prior to Final Application for Payment: Set of as-built documents, Contract Completion and Acceptance Certificate, Consent of Surety to Final Payment, Release and Waiver of Liens and Claims, Affidavit of Payment of Debts and Claims, and remaining releases, waivers, warranties/guarantees, and all other data required by the Contract Documents.

1.07 CLOSEOUT SUBMITTALS

A. The closeout submittals include but are not necessarily limited to

a. Evidence of payment and release of liens.

b. Waste shipment manifests and shipping records.

c. Records of quantities/weights of materials shipped off-Site, including all contaminated materials to disposal facilities and all recycled/reused materials.

d. All other records or documents as necessary (i.e. personal air sampling records, injury reports, etc.)

e. All sampling data and summary tables from dust monitoring and air sampling

f. All sampling data and summary tables from dewatering treatment/disposal, as appropriate

g. Construction photographs

h. As-built drawings, including survey/GPS information on locations of utility terminations as described in Paragraph 1.03.B of this Section and information on the temporary driveway location, PCB capped areas and chain link fence locations as described in Paragraph 1.03.C of this Section.

1.08 FINAL COMPLETION:

A. Prior to final completion, the following tasks shall be completed:

1. All items in the punch list shall be completed.

2. All Contract closeout documentation shall be submitted to and accepted by the Engineer.

1.09 CORRECTION/WARRANTY PERIOD:

A. During the correction period, the Contractor shall correct all deficiencies in equipment and materials.

B. During the warranty period, the Contractor shall perform all corrective work on warranty deficiencies.

C. Corrective work will be identified by the Engineer or Owner, as appropriate. The Contractor will be notified of the item(s) requiring corrective work.

D. The Contractor shall begin work on all corrective work once notified of the deficiency by the Engineer and shall then work continuously until the deficiency is corrected. Upon completion of the corrective work, the Contractor shall submit a letter report to the Engineer describing the deficiency and the corrective action that was taken.

E. The Contractor shall coordinate all corrective work with the Engineer and/or the Owner.

1.10 COMPLETION CHECKLIST:

A. When the Project has been fully completed, Final Payment can be approved.

EXAMPLE PROJECT COMPLETION CHECKLIST

Owner _____ Job No.

Project

As part of the project closeout, all items listed below, in addition to others deemed appropriate by the Engineer, must be checked off as being complete or otherwise accounted for. The person verifying completion of the item shall list the completion date and his/her initials.

Example Project Closeout Checklist		
	Date Completion Verified	Verified by
AS-BUILT DOCUMENTS HANDED OVER		
1. Contract Drawings		
2. Specifications		
3. GPS Coordinates of Utility Abandonment/Demolition Locations		
4. Addenda		
5. Change Orders/Contract Modifications		
6. Reviewed Shop Drawings, Product Data and Samples		
7. Written Interpretations/Clarifications		
8. Field Orders		

Example Project Closeout Checklist

	Date Completion Verified	Verified By
FINAL CLEANING		
1. All Construction Facilities Removed		
2. All Construction Debris Removed		
3. All Areas Swept/Cleared		
CLOSEOUT PROCEDURES		
1. Written Certification Submitted that Work is Ready for Owner & Engineer Inspector		
2. Inspection by Owner, Engineer, Contractor completed		
3. Punch List of Nonconforming Items Prepared		
4. Documents Required by Governing or Other Authorities Submitted (List Them)		
5. Final Application for Payment Received		
6. Contact Completion and Acceptance Certificate Submittal		
7. Consent of Surety to Final Payment Submittal		
8. Release and Waiver of Liens and Claims Submitted		
9. Affidavit of Payment of Debts and Claims Submitted		
10. Warranties/Guarantees Submitted		
11. Other Required Releases and Waivers Submitted (List Them)		
12. Permits Submitted (List Them)		
13. Weekly Payrolls Submitted as Required by Law		
FINAL COMPLETION		
1. All Items in Punch List Completed		
2. All Other Required Documentation Submitted (List It)		

Example Project Closeout Checklist		
	Date Completion Verified	Verified By
CORRECTION/WARRANTY PERIOD		
1. Correction Period Start Date: _____ End Date: _____		
2. Specific Warranties Provided Item Warranty Duration		

Full name of persons signing their initials on this checklist:

_____

_____

_____

_____

_____

END OF SECTION

SECTION 02051

ASBESTOS ABATMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Attention is directed to the BIDDING AND CONTRACT REQUIREMENTS and all Sections within DIVISION I - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

B. Related Sections

1. Division 2 – Asbestos Abatement Work Plan for Demolition of Structurally Unsound Former Jones & Lamson Facility

2. Division 2 – Section 002075 Universal and Hazardous Waste

3. Division 2 – Section 02220 Demolition

4. Division 2 – Section 13282 Lead Containing Paint Handling

C. Related Information

1. Regulated Building Material Survey Report, Former Jones & Lamson Facility, 160 Clinton Street, Springfield, Vermont dated June 15, 2016, prepared by ATC Group Services (formerly Environmental Compliance Services, Inc.).

2. Structural Engineering Observations and Recommendations for Environmental Sampling and Testing report dated May 20, 2016, prepared by Heritage Engineering.

3. Structural Observations, Jones & Lamson Building, report dated June 20, 2013, prepared by Heritage Engineering.

1.2 DESCRIPTION OF WORK

A. The intent of the Work described in this Section is to completely remove all Asbestos-Containing Materials (ACM) utilizing “conventional abatement” in accordance with Vermont Regulations for Asbestos Control (VRAC) performed in structurally intact locations and in areas made safe by select demolition activities. The conditions and work practices detailed in the Asbestos Abatement Work Plan shall apply to areas determined to be structurally unsound and unsafe for workers to attempt to remove ACM from the facility prior to demolition. The Contractor shall furnish all labor, material, supervision, construction tools, transport vehicles and equipment necessary to perform the following work:

1. Pre-bid inspection. The potential Bidders are encouraged to visit the Project Buildings prior to bidding in order to determine the actual amounts of asbestos containing materials to be removed.

2. Provide documentation of worker training, respiratory protection and medical examination.

3. Provide access, support and protection to all authorized visitors and inspectors.

4. Filing of and/or obtaining all required notifications, permits, work plans and payment of all required associated costs and fees. Variance preparation, completion, submission, approval, costs, and notifications are the sole responsibility of the Contractor.

5. Work area preparation and work practices.

6. Proper removal, packaging, transport and disposal of all ACM as specified herein. If applicable, note that vehicles transporting bulk-loaded demolition debris containing a reportable quantity (greater than 1 pound) of asbestos shall be properly placarded in accordance with USDOT regulations. All drivers shall be appropriately trained and licensed to transport this material.

7. Isolation of the Work Area for the duration of the work so as to prevent asbestos contaminated dust or debris from passing beyond the isolated area.

8. The Contractor is responsible to perform all demolition, including building materials, vegetation, asphalt, trenches, etc., required to access ACMs, this includes all cutting, capping, and disconnecting of utilities and building systems to perform abatement.

B. It is the Contractor's responsibility to determine the most efficient method to legally perform this Work. Unless specifically noted, this Specification does not dictate specific methods to be implemented in the performance of the Work. The entire application of all accessible ACMs shall be removed inclusive of any substrate contamination, whether present on or below the substrate surface or embedded in the matrix of the substrate component or adhered to fixtures, equipment, or other building materials.

C. The Contractor shall perform all work in accordance with these specifications, the USEPA and OSHA regulations, NIOSH recommendations, Vermont Regulations for Asbestos Control (VRAC) regulations, local statutes, local ordinances, local codes and any other applicable federal, state and local government regulations and guidelines.

D. The Contractor is advised that paints and/or coatings existing within or on the buildings may contain lead. The Contractor shall at all times be in compliance with OSHA regulation 29 CFR 1926.62 Lead in Construction; Interim Final Rule as well as other applicable regulatory requirements and other applicable portions of the contract documents.

E. The Contractor shall be responsible for site security. Due to historical vandalism at the site, it will be the responsibility of the contractor to maintain security of equipment, containments, work areas, buildings, corridors, and trenches during the duration of their activities on site. If a containment or work area becomes vandalized and requires repair, the Contractor shall reconstruct the containment or work area at no cost to the Owner.

1.3 SCHEDULING

A. The Contractor and the Owner shall develop an abatement schedule for the work at the Pre-Construction Conference. The Owner may choose to alter the work sequence as they see fit.

B. The Contractor shall update the schedule and submit any schedule changes for review by the Owner at the weekly construction meetings.

1.4 LOCATION OF WORK AND SITE CONSTRAINTS

A. Location of work areas, descriptions and estimated quantities of ACM requiring "conventional abatement" are described in the provided data Table 1. The quantities are provided for guidance and may not correspond exactly to the quantity to be removed. Contractor shall verify quantities of asbestos for bidding purposes. If additional ACM's are encountered, Contractor shall notify the Designer immediately and have an asbestos removal team prepared to abate the material upon written approval by the Owner.

TABLE 1
CONVENTIONAL ABATEMENT
ASBESTOS CONTAINING MATERIALS
JONES AND LAMSON, SPRINGFIELD, VERMONT

Location	Description	Estimated Quantity
Boiler House	Interior Window Glazing Compound	200 LF
Boiler House	Pipe Insulation, Associated Fittings and Debris	250 LF
Boiler House	Boiler Rope, Gaskets, Internal Components, Cement and Contaminated Insulation and Debris	Three (3) Industrial "Dillon" Steam Boilers
Throughout Boiler House Roofing System	Roofing, Including Membrane, Flashing and Patching Materials	1,000 SF
Pump House	Black Electrical Panel Cement Board	200 SF
Pump House	Large Diameter Asbestos Rope and Debris	500 SF
Throughout Pump House Roofing System	Roofing, Including Membrane, Flashing and Patching Materials	500 SF

B. Due to the contamination of large amounts of debris (metal, wood, office/manufacturing materials, etc.) left in the buildings, extensive pre-cleaning and disposal of contaminated materials will be necessary. The Contractor is responsible for determining the labor, materials, and disposal costs for these activities and including the cost in their bid. Chases, trenches, damaged walls and/or flooring, lighting/plumbing/electrical equipment, plenums, etc. shall be included in all pre-cleaning and decontamination activities. At a minimum, pre-cleaning activities shall be conducted with critical barriers in place, under negative pressure with HEPA filtration and with workers in proper personal protective equipment (PPE).

1.5 AUTHORITY TO STOP WORK

A. Owner has the authority to stop the work at any time Owner determines either personally or through the services of the Designer that conditions are not within the specifications and applicable regulations. The stoppage of work shall continue until conditions have been corrected and corrective steps have been taken to the satisfaction of Owner's Asbestos Project Monitor. Standby time required to resolve violations shall be at the Contractor's expense, and any fines, etc., for hazardous conditions or non-compliance will be at the Contractor's expense, and will not be grounds for change orders or time extension.

B. The Asbestos Project Monitor shall notify the Contractor when airborne fiber levels measured outside the work area enclosures or at the boundary of regulated areas exceed 0.010 f/cc or established background levels, at which time the Asbestos Project Monitor will direct the Contractor to stop work, determine the cause of the elevated fiber levels and implement corrective actions.

C. Stop work orders may be issued for, but not limited to the following:

1. Breaks in barriers.

2. Loss of negative air (0.02 inches of water column - minimum negative pressure to be maintained).

3. Leakage to other areas.

4. Fiber concentrations outside the work area, which exceed 0.010 f/cc for any one PCM sample.

5. If the Contractor disregards laws or regulations of any regulatory or governing body having jurisdiction.

6. If the Contractor's work presents a risk to the building, to building occupants to the general public or to the environment as determined by Owner or the Designer.

D. The absence of a stop work order by Owner or Designer shall not in any way be construed as an approval or acceptance of the Contractor's work.

1.6 CONTRACTOR QUALIFICATIONS

A. Owner shall approve the proposed Contractor and will be based upon submission by the Contractor of the following:

1. Insurance and bonding as stated in the Contract Documents (if applicable).

2. Licensing by the Vermont Department of Health (VTDOH) as an Asbestos Abatement Contractor.

3. Names and locations of at least three asbestos abatement projects similar in scope and size to this project completed by the proposed Contractor. Provide the name and phone number of a contact person for each referenced asbestos abatement project.

1.7 PERSONNEL QUALIFICATIONS

A. All personnel of the Contractor involved with this work shall meet the following minimum qualifications:

1. Asbestos worker medical examination within the past year in accordance with OSHA 1926.1001 with a physician's written opinion that the worker has no condition that would preclude him/her from working with asbestos or wearing a respirator.

2. Current certification and licensing by the VTDOH as an Asbestos Supervisor or Asbestos Worker.

1.8 AVAILABILITY OF TRAINED PERSONNEL

A. There shall be a sufficient number of trained and qualified workers, foremen and superintendents to accomplish the work within the required schedule. No untrained nor fully qualified and pre-approved person shall be employed to speed up completion of the abatement work.

1.9 DEFINITIONS

A. All terms not defined herein shall have the meaning given in the applicable publications and regulations.

B. Abatement: Procedures to control fiber release from asbestos-containing materials. Includes encapsulation, enclosure, and removal.

C. Air Monitoring: The process of measuring the fiber content of a specific volume of air in a stated period of time.

D. Asbestos: The name given to a number of naturally occurring hydrated mineral silicates that possess a unique crystalline structure, are incombustible and are separated into fibers. Asbestos includes chrysotile, crocidolite, amosite, anthophyllite, and actinolite.

E. ACM or Asbestos-containing materials: Any material containing one percent or greater by weight of asbestos of any type or mixture of types.

F. Asbestos wastes: All building materials and debris, insulation, disposable clothing and protective equipment, plastic sheeting and tape, exhaust systems or vacuum filters, or any abatement equipment that is or has been contaminated with asbestos and cannot be completely cleaned by vacuuming or by washing.

G. Authorized Visitors: Any visitor authorized by Owner, the Designer or any representative of a regulatory agency or other agency having jurisdiction over the project.

H. Barrier: Any surface that seals off the work area to inhibit the movement of fibers.

I. Critical Barrier: A solid asbestos impermeable partition erected to constitute a work area closure; the outer perimeter of an asbestos work area, usually erected across corridors or other open spaces to complete containment.

J. Decontamination Enclosure System: A series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains at least one airlock.

K. Encapsulation: All herein specified procedures necessary to coat all asbestos-containing materials with an Encapsulant to control the possible release of asbestos fibers into the ambient air.

L. Enclosure: All herein specified procedures necessary to complete enclosure of all ACM behind airtight impermeable, permanent barriers.

M. Friable Asbestos Material: Material that contains more than one percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.

N. Glovebag: A sack (typically constructed of 6-mil transparent polyethylene or polyvinylchloride plastic) with two inward projecting long sleeve gloves, which are designed to enclose an object from which an asbestos-containing material is to be removed.

O. HEPA Filter: Equipment with a High Efficiency Particulate Air (HEPA) filter, greater than 99.97 percent efficiency by 0.3-micron DOP test, and complying with ANSI Z9.2 (1979).

P. PACM: Presumed asbestos-containing materials.

Q. Removal: All herein specified procedures necessary to strip all ACM from designated areas and to dispose of these materials at an acceptable site.

R. Respirator: A device designed to protect the wearer from the inhalation of harmful atmospheres.

S. TSI: Thermal system insulations which include all types of insulating materials on boilers, tanks, heat exchangers, pipes, ducts, breeching and other machinery, equipment and components which require insulation.

T. VAT: Vinyl asbestos (floor) tile.

U. Visible Emissions: Any emissions containing particulate asbestos material that are visually detectable without the aid of instruments. This does not include condensed uncombined water vapor.

1.10 EMERGENCY PRECAUTIONS

A. The Contractor shall develop and submit a written site specific fire protection plan, which specifically addresses fire protection during asbestos abatement. This plan shall be submitted to Owner for review prior to the start of work.

B. The Contractor shall establish and maintain emergency and fire exits from the work areas. The Contractor shall submit a written emergency evacuation plan to the Owner and to the Designer for review.

C. Local emergency medical personnel, both ambulance crews and hospital emergency room staff, shall be notified prior to commencement of abatement operations as to the possibility of having to handle contaminated, injured workers, and shall be advised on safe decontamination. The Contractor shall submit copies of such notifications to the Designer.

D. The Contractor shall have a written Health and Safety plan. When an injury occurs the Contractor shall stop work and implement fiber reduction techniques (e.g., water spraying) until the injured person has been removed from the work area.

E. Before the Contractor starts any removal of the asbestos material, the Contractor shall notify the local police and fire departments as to the proper personal protective equipment required by persons providing emergency response services. The Contractor shall make every effort to help these agencies form plans of action should their personnel need to enter contaminated areas.

1.11 SUBMITTALS

A. The Contractor shall submit each item in this Article according to the Conditions of the Contract, for information only, unless otherwise indicated.

B. All submittals shall be submitted to the Designer prior to the start of work.

C. Abatement Plans using conventional containment and negative pressure shall be submitted on a building-by-building basis prior to work in the building**.** The Work Plan shall include, at a minimum, the following:

1. Layout of project execution components showing the configuration of the containment area.

2. A description of Security System, warning signs and labels for bags and drums.

3. Access routes to asbestos controlled areas.

4. Copy of notification to police department, fire department and local ambulance and hospital.

5. A description of wetting agents and low pressure wetting system.

6. Description of enclosures to be used.

7. Description of wall, floor and opening coverings and sealing tapes.

8. Fire Protection Plan, safety plan, and emergency evacuation plan.

9. Detailed plans for decontamination facilities.

10. Engineering systems for exposure control showing the number, location and capacity of exhaust systems, the expected direction of flow and the negative pressure in each work area.

11. Submit manufacturer's certification that vacuums, ventilation equipment, and other equipment required to contain airborne asbestos fibers conform to ANSI Z9.2 and to requirements as listed in this Specification.

12. Materials Safety Data Sheets (MSDS's) for all products used on the Project.

13. Standard Operating Procedure showing how workers, visitors, and employees will be protected from exposure and how spaces outside the work areas will be protected from contamination until completion of the work.

D. A separate work plan shall be prepared by the Contractor and provided to the Designer and Owner addressing the sequencing, bulk demolition and segregation of material. The Contractor shall submit this Work Plan for review and approval. This work plan shall include the following:

1. A description of the wetting procedures to be used for the work including, but not limited to demolition, load-out, etc. This item shall address the amount of water to be used, size and number of hoses, water source and means for determining whether adequate water is being used (lack of visible emissions, compliance with air sampling action level, etc.).

2. A description of the procedures to be used to contain water run-off.

3. Proposed methodology of bulk loading including minimizing cross-contamination of surrounding areas.

4. A description of the proposed transport vehicles including transporter’s name, size of vehicles, type of container, etc.

5. A description of the proposed packaging procedures.

6. Proposed landfill with applicable license to accept asbestos waste.

7. Proposed methodology to final clean substrate after bulk materials have been removed.

8. Standard Operating Procedure showing how workers, visitors, and employees will be protected from exposure and how spaces outside the work areas will be protected from contamination until completion of the work.

E. To comply with applicable regulations, notify appropriate regulatory agencies of abatement activities.

1. Provide the required written notification at least 10 days before the start of the asbestos abatement activity to the VTDOH and other Regulatory Agencies as required.

2. Provide the required written notification by registered mail to local authorities as required.

3. Obtain and process all applicable forms and permits required.

F. Sample literature for proposed disposable protective clothing to be used on this Project.

G. Respiratory Protection System(s), including literature describing sample respirators, hoses and certificate with system literature for the air supply system from manufacturer stating that air supply system meets specifications on quality, quantity and escape time. These submittals are required only if supplied air respiratory protection is used.

H. Certification of compliance with OSHA requirements including but not limited to medical surveillance, record keeping and personal monitoring.

I. Documentation of certification in accordance with VSA Title 18, Chapter 26 for each employee.

J. Final landfill destination(s) and copies of transporter and Landfill permits as well as Waste Shipment Records

K. Copies of all Notifications made to VTDOH Asbestos Program, Local Board of Health, Local Fire Department, and any other agencies, as required.

L. Application for and obtaining of waivers and exemptions, which may be required by various regulatory agencies.

1.12 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in text by basic designation only. The list provided below is not intended to be all inclusive of each regulation prevailing over the work.

B. Environmental Protection Agency (EPA):

1. Regulations for Asbestos (Code of Federal Regulations Title 40, Part 61).

2. Guidance for Controlling Friable Asbestos-Containing Materials in Buildings.

3. A Guide to Respiratory Protection for the Asbestos Abatement Industry.

C. Occupational Safety and Health Administration (OSHA):

1. Asbestos Construction Standard ARTICLE 29 CFR Part 1926.1101.

2. Asbestos General Industry Standard ARTICLE 29 CFR 1910.1001

3. Respiratory Protection, 29 CFR 1910.134

4. Vermont Occupational Safety and Health Administration (VOSHA) Standards

D. National Institute for Occupational Safety and Health (NIOSH):

1. “Respiratory Protection A Guide for the Employee."

E. American National Standards Institute (ANSI):

1. Z86.1-1973 - Commodity Specification for Air.

2. Z9.2 - HEPA Filter Specifications.

3. Z88.2-1980-Respiratory Protective Equipment

F. Vermont Department of Health

1. Vermont Regulations for Asbestos Control (VSA Title 18, Chapter 26)

G. U.S. Department of Transportation

1. 49 CFR 171 - 180, Hazardous Materials Regulations

2. 51 CFR 42176

PART 2 - MATERIALS AND EQUIPMENT

2.1 GENERAL

A. All materials or equipment delivered to the site shall be unloaded, temporarily stored, and transferred to the work area in a manner which shall not interfere with operation of others at the site, or employee’s access and safety.

B. Damaged or deteriorated materials shall not be used and shall be promptly removed from the premises. Materials that become contaminated with asbestos-containing material shall be thoroughly cleaned, or sealed in plastic bags or sheeting, labeled, and legally disposed of in an approved, secure landfill.

C. All materials and equipment shall comply, at a minimum, with all sections of this specification, applicable federal, state, and local codes, and industry standards.

2.2 ABATEMENT EQUIPMENT & SUPPLIES

A. HEPA-Filtered Exhausts - Air inside each work area shall be exhausted through a High Efficiency Particulate Air (HEPA) filter. Commercially manufactured HEPA-filtered exhaust units, with specification plates intact, must be provided for each work area to attain, at a minimum, four air volume changes per hour and an inward flow velocity of clean air into each work area at the Decontamination Facility of at least 100 feet per minute. The HEPA filter shall be preceded by replaceable prefilters and the unit must be designed so that it cannot be operated unless all filters are in place. The units must also be designed with a gauge to indicate the pressure drop across filters, and lights and audible alarms to indicate that the filters are properly installed, functional, and when they must be changed. Flexible ducting shall be required to allow

exhausting to the exterior of the building. No exhaust with any other type of particulate cleaning system (such as electrostatic precipitators) shall be allowed without prior written approval.

B. Plastic Sheeting ("Poly") and Bags - shall be polyethylene or equivalent with a thickness of 6 mil for all applications.

C. Wetting Agent or Surfactant - shall be 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether, or equivalent, mixed in the proportion of one ounce of surfactant per five gallons of water. The material shall be odorless, nontoxic, nonirritating, and noncarcinogenic. It shall be applied as a mist using a low pressure sprayer recommended by the surfactant manufacturer.

D. Tape and Glue - shall be capable of sealing plastic joints and attaching plastic to finished surfaces. The bonding strength and resulting seal integrity shall not be affected by mist or water, wetting or encapsulating agent, or any other materials to be used in the work area.

E. Warning Signs and Labels - shall comply with all federal, state, and local codes and regulations.

F. Waste Containers and Transportation - shall be suitable for loading, temporary storage, transport, and unloading of contaminated waste without risk of ripping, rupture, or exposure to persons, or emissions to the atmosphere. Transportation methods shall comply with the provisions of 40 CFR 61, Subpart M, and with any and all state and local hazardous or special waste regulations for temporary storage, transport, and disposal if such codes are enforced in states in which the waste will be stored, transported, or disposed.

G. Truck Liners - shall be polyethylene or equivalent with a thickness of at least 10 mil for all applications, as applicable.

2.3 SAFETY SUPPLIES AND EQUIPMENT

A. Respirator Types - Provide all workers with a full or half face piece respirator which is approved by NIOSH/MSHA for protection against airborne asbestos, and meets the requirements of the OSHA Asbestos Standard. Provide respirators for each worker and at least two extra respirators for use by approved visitors. Minimum respiratory protection required shall be compliant with current OSHA and VTDOH regulations including VA Title 18, Chapter 26 and TITLE 29 CFR 1926.1101

B. Protective Clothing - Provide all workers and approved visitors with disposable coveralls, head and foot coverings, gloves, eye protection (i.e., safety glasses) and half-face respiratory protection including replacement HEPA filter cartridges.

2.4 ENCLOSURES, SHOWERS AND TOILETS FOR REMOVAL

A. For each abatement area, provide decontamination facilities located in an area agreed upon with the Designer. The decontamination facilities shall include a Decontamination Enclosure System for workers and visitors and a Decontamination Enclosure System (as necessary) for loading of asbestos into trucks for transportation to the landfill.

B. The Decontamination Enclosure System for workers and visitors shall consist of three rooms that serve as three air locks as follows: Clean Room at entrance followed by Shower Room followed by an Equipment Room leading to the Work Area.

C. The Decontamination Enclosure System for removing asbestos bags or drums from the work area (as applicable) shall consist of an Air Lock from the Work Area leading into the Bag Wash and Wipe Room, and another Air Lock leading to outside the work area.

D. An Airlock is a system permitting unidirectional flow of air through the decontamination unit. It consists of two curtained doorways at least eight feet apart. Each curtained doorway shall be constructed by placing three overlapping sheets of plastic over a framed doorway, securing each along the top of the doorway. The first and third sheet shall be secured on one side of the doorway and the middle sheet shall be secured on the other side of the doorway. Where size of work area permits, eight-foot distance between doorways is acceptable. Where size of work area is prohibitive, distance between doorways may be adjusted but must allow enough space for one doorway to be closed before the next doorway is opened.

E. Provide lockers (as necessary) for storage of workers' street clothes in the clean room. Provide in the same room uncontaminated disposable protective clothing and gear for workers to don prior to entering the contaminated area and for workers to dress into street clothing after they have showered and dried in the shower room as they exit from the contaminated area.

F. Provide shower room facilities with hot and cold water so arranged as to provide complete showering of workers and visitors as they exit from the contaminated area. Make provisions to prevent any contaminated run-off from the shower room. The shower room facilities and size shall be adequate to allow decontamination and thorough washing of all the workers and visitors within a ten-minute period. The hot and cold water shower shall be functional at all times while workers are within the work area enclosure. Shower water temperature shall be controlled at the tap.

G. Provide the Equipment Room with storage for contaminated clothing and equipment. In this room, workers and visitors shall dispose of their disposable protective clothing except the respirator as they prepare to enter the Shower Room.

H. The Bag Wash and Wipe Room shall be equipped with the facilities to wash and wipe the outside of the drum or bags prior to the loading into the trucks for transportation to a landfill. Make provisions to prevent any contaminated run-off from the Bag Wash Room.

I. Provide heating and ventilation in entire Decontamination System so that airflow will be from the outside towards the workspace.

2.5 TOOLS AND EQUIPMENT

A. Airless Sprayer: Airless sprayers, in sufficient quantity and suitable for application of encapsulating material, shall be used, as necessary.

B. Negative Air Filtration Unit: Asbestos filtration devices shall utilize high efficiency particulate air (HEPA) filtration systems, 99.97% efficient to 0.3 microns particulate size.

C. Scaffolding: Scaffolding, lifts, ladders, and aerial equipment as required to accomplish the specified work, shall meet all applicable safety regulations.

D. Transportation Equipment: Transportation equipment, as required, shall be suitable for loading, temporary storage, transport, and unloading of contaminated waste without exposure to persons or property. The equipment shall be secured at all times and access restricted to unauthorized personnel.

E. Vacuum Equipment: All vacuum equipment utilized in work areas shall utilize HEPA filtration systems, 99.97% efficient to 0.3 microns particulate size. Deliver all vacuums to the site with clean waste containers and intact, undamaged HEPA filters installed.

PART 3 – EXECUTION

3.1 COORDINATION AND SCHEDULING

A. The Contractor shall coordinate all work with the Designer and the Owner.

B. The Contractor shall submit to the Designer prior to contract performance, a schedule of work including sequencing of asbestos removal areas and demolition (as necessary).

C. The Contractor shall give not less than a two-week advance notice of proposed time for shutting down or interrupting any utility, service or access, which may affect site operations.

D. The Contractor shall make all required notifications and obtain all permits including, but not limited to VTDOH and EPA. All associated costs and fees shall be paid for by the Contractor and included in the base bid price.

3.2 RESPIRATORY PROTECTION SYSTEMS

A. Provide all workers and authorized visitors with NIOSH approved respirators compliant with OSHA regulations and a sufficient quantity of disposable filters, so that workers can change filters during the workday. Store the respirator filters at the job site in the change room, and protect them from exposure to asbestos or other hazardous materials prior to their use.

B. Workers shall always wear a respirator properly fitted on the face while within the work area enclosure and decontamination and bag/drum wash areas. Any worker failing to wear his/her respirator or in any way performing his/her work in an unsafe manner shall be restricted from working at this site.

C. Instruct and train workers in proper respirator use.

3.3 PROTECTIVE CLOTHING

A. Provide to all workers, foremen, superintendents and authorized visitors and inspectors protective disposable clothing consisting of full body coveralls, head covers, gloves and 18-inch high boot type covers or reusable footwear.

B. Provide eye protection and hard hats as required by job conditions and safety regulations.

C. Reusable footwear, hard hats and eye protection devices shall be left in the "Contaminated Equipment Room" until the end of the asbestos abatement work.

D. All disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facilities

E. Provide all personnel throughout the abatement process with the specified protective clothing and gear. Ensure that all personnel entering and leaving the workspace use the following procedures:

1. Entering from the outside: Change from street clothes into protective clothing and wear clean protective gear. Go through shower room into Dirty Equipment Room, pick up equipment and tools and enter the work area.

2. Exiting from the Work Area: Dispose of all protective clothing into labeled plastic bags for asbestos waste. Do not take off the respirator, but still wearing the respirator enter the shower and shower thoroughly. Remove respirator and wash and wipe thoroughly to decontaminate the respirator. After drying, enter the Clean Room, store the decontaminated respirator in the assigned space and dress into street clothes.

3. Post written procedures in the workplace and train all personnel on the procedures for the evacuation of the injured and the handling of potential fires. Provide aid to a seriously injured worker without delay for decontamination. Make provisions to minimize exposure of rescue workers and to minimize spreading of contamination during evacuations and fire procedures. Exceptions to normal, routine-exiting procedures shall be made for emergencies such as, but not limited to, serious personal injury and fires.

4. The Contractor shall instruct all employees and workers in the proper care of their personally issued respiratory equipment, including daily maintenance, sanitizing procedures, etc.

F. All respiratory equipment shall be inspected by Contractor's personnel at the beginning of each work period, including breaks and lunch periods.

3.4 GENERAL PREPARATION PROCEDURES

A. Upon receipt of a Notice to Proceed, the Contractor shall meet at the Site with the Designer and Owner to reach agreement on:

1. Scope and manner of work performance and all schedules.

2. Contractor and supporting vendor vehicle access and parking.

3. Contractor access to the work areas, including approved doors, stairways, and corridors.

4. Location of water supply and wastewater drain connection points, if available.

5. Determination of all equipment and other items to be removed from the work areas, and the location of temporary storage space, if applicable.

6. Any other logistical factors to minimize interference with public safety and health, and other Contractor activities.

B. Prepare each work area according to the following general sequence of procedures to ensure that proper fiber containment and protection systems are installed before any work, which could generate airborne asbestos fibers.

1. Erect barricades, post access restriction signs, seal all openings into the work area airtight (including doors, chases, shafts, and other vertical penetrations), and erect or install Decontamination Facilities and HEPA exhaust systems.

2. Install poly sheeting in the work zone. Perform precleaning/surface decontamination where appropriate prior to installing protective poly sheeting.

3. Isolate and seal airtight with plastic and tape all HVAC system openings in the work area. All HVAC or exhaust systems within, or ductwork passing through, a fully contained removal area shall be inactivated (this does not refer to glove bag removal areas).

4. Obtain formal approval from Designer of all preparation work and containment areas before commencing asbestos removal. The Designer shall be given at least 48 hours notification of the intent to start removal work in any work area.

5. If saw cutting or any other method or device that renders non-friable materials friable, a negative air containment area must be erected.

D. Isolation of Electrical Systems

1. The scope of the electrical isolation work covers the protection of electrical equipment that is in areas where asbestos removal work is performed and where the water used for wetting the material before or during removal could possibly contact the equipment and create a hazard. **Power at the site is off and the meters have been pulled. The Contractor is to provide electrical power to perform work**.

2. Provide portable electrical panels and/or generators with ground fault protection for all non-battery power requirements. These shall have sufficient capacity for all HEPA exhausts and vacuums, power tools, portable lighting, and all other electrical needs.

3. Provide a licensed electrician to perform all electrical work including, but not limited to connecting, energizing, and de-energizing the electrical panels and/or generators and to be on call to handle any electrical problem, which may arise during the course of the work.

4. All materials and workmanship shall comply with the latest editions of applicable codes, standards, and specifications.

5. Once a work area becomes isolated by containment, only weatherproof lighting and washable tools and equipment will be allowed in the area.

3.5 DECONTAMINATION FACILITES

A. Description - Any person or thing exiting from the work areas must pass through a Decontamination Facility consisting of three separate, adjacent rooms separated by curtained entrances, constructed in accordance with applicable regulations. Bulk, non-friable asbestos waste, which was packaged in a clean environment, does not require decontamination in a shower. All containers passing through the Decontamination Facility must be cleaned thoroughly before exiting the facility.

B. Construction - Decontamination Facilities shall be constructed and maintained as specified in applicable regulations and shall be located in areas approved by Designer.

C. Manner of Operation - All personnel shall enter the Clean Room, remove and store street clothes, and put on clean protective clothing and respirators; then enter the Equipment Room, put on any additional equipment, and enter the work area. All personnel exiting the work area shall enter the Equipment Room, remove and store or dispose of all contaminated clothing and shoes, shower, and then put on street clothing in the Clean Room. Respirators shall be worn into and cleaned in the shower, and dried and stored in the Clean Room.

D. Wastewater Disposal - All water from the shower and cleaning hose shall be collected, pumped through a 5.0 micron filter, and then legally drained to points approved by the Designer. The Contractor shall legally handle, transport, and dispose of all filtrate and solids.

E. Cleaning - Decontamination Facility shall be cleaned using a HEPA-filtered vacuum at least once every shift, or more frequently, if needed, to prevent dust accumulation.

F. Prohibitions - Smoking, drinking, or eating shall not be permitted in any work area or Decontamination Facility.

3.6 WORK AREA ISOLATION

A. Preclean any fixed objects or equipment within the work areas by using HEPA-filtered vacuum equipment and wet washing except where air samples indicate concentrations of airborne fibers less than 0.010 f/cc and where there is no contamination of any surfaces; then enclose with 6-mil plastic sheeting sealed airtight.

B. At minimum, large areas, such as open shafts, doorways, and stairwells, shall be sealed with two layers of 6-mil poly over plywood on 2” x 4” framing or approved alternative.

C. Protect and isolate the work area for the duration of work by completely sealing off all openings and fixtures (including, but not limited to, floors, walls, heating and ventilation ducts, doorways, corridors, windows, and lighting) using plastic sheeting sealed securely in place. The work area shall be sealed airtight to the extent possible.

D. Seal airtight all holes or other openings in the ceiling above and the floor below in each work area with poly sheeting.

3.7 AIR FILTRATION SYSTEM - FULLY ENCLOSED WORK AREAS

A. Provide negative air filtration system in the work area to maintain a minimum negative pressure of 0.02 inch of water. If negative air pressure of 0.02 inches is lost, work shall be halted until the required negative air pressure is restored.

B. The Contractor shall provide local exhaust ventilation in the work area to maintain a negative pressure in the work area relative to the adjacent non-work areas. The exhaust units must be equipped with a High Efficiency Particulate Air (HEPA) filter capable of retaining 99.97% of particulate matter greater than or equal to 0.3 microns in size. This filter must comply with ANSI Z9.2 standards. The fan for each unit should be sized to draw a desired airflow through the filters in the unit at a specified pressure drop. The unit should have an air-handling capacity of 1,000 CFM to 2,000 CFM (under "clean" filter conditions).

C. HEPA air filtration equipment shall be equipped with visible and audible alarms that indicate the equipment is operating properly and when the air filtration media requires replacement and/or equipment requires servicing.

D. The system created to maintain the specified negative air pressure differential shall be capable of providing a minimum of one air change every 15 minutes. Fifteen-minute air changes are mandatory during removal of asbestos-containing materials. All HEPA exhaust units shall be vented outside the buildings.

E. All air filtration units utilized on this project shall be delivered to the site in good condition with no visible debris and shall have intact HEPA filters installed with no holes, voids or gouges in the filters. Pressure differential across the filters shall be less than 0.02”.

F. The air filtration system shall be operated on a continuous 24-hour basis throughout the abatement process through successful final air clearance testing and containment dismantling. The ventilation system shall be in accordance with EPA recommendations included in the “Guidance for Controlling Friable Asbestos-Containing Materials in Buildings”.

G. No work will be allowed when the pressure differential in the work area is less than 0.02” relative to adjacent building areas.

H. Employees should start removing the asbestos material at a location farthest from the exhaust units and work towards them. If an electric power failure occurs, removal must stop immediately and shall not resume until power is restored and exhaust units are operating again.

3.8 WORK AREA EXHAUST

A. Install one or more portable HEPA-filtered exhausts to maintain each work area, including the Decontamination Facility, under negative pressure, and to reduce airborne asbestos fiber concentrations.

B. The exhaust(s) must be capable of providing at least an inward velocity through any unsealed

openings, including the Decontamination Facility, of at least 100 fpm, and four full air changes per hour throughout the work area.

C. All exhaust air shall pass through a HEPA filter before being discharged to the exterior of the building.

D. Deficient air flows shall be immediately reported and work ceased until the situation is corrected.

E. Exhaust system shall be operated constantly from the time that preparation is completed, until "clean air" certification is obtained.

3.9 APPROVAL OF CONTAINMENT AREAS

A. After the work area has been prepared as specified, the Contractor shall request an inspection by the Asbestos Project Monitor. No removal or disturbance of asbestos-contaminated materials or systems is to occur until the Project Monitor has inspected and approved each separate prepared work area.

B. Any deficiencies in the preparation work shall be promptly corrected in a manner satisfactory to the Designer.

3.10 ASBESTOS REMOVAL PROCEDURES

A. Demolition of block, brick, wood, plywood, luan, vinyl or aluminum siding, concrete, plaster, gypsum board walls and ceilings, and other building materials, equipment, fixtures, and components to properly access and remove ACMs is part of the Contractor's work. Selective demolition shall be performed in a controlled manner as to not affect ACMs or PACMs.

B. The Contractor shall remove all movable objects/items stored in the buildings unless otherwise specified. Non-porous items can be decontaminated and disposed of as conventional waste unless otherwise specified or regulated. Porous materials are to be disposed of as asbestos waste unless regulated or specified otherwise.

C. Asbestos-Containing Materials (Excluding Glovebag Removal, if applicable):

1. All asbestos-containing materials to be removed shall be contained within a negative pressure enclosure system, wetted with amended water and carefully removed to prevent droppage and creation of airborne dust.

2. Once the removal of all asbestos-containing material is complete, all surfaces and walls within the area shall be thoroughly cleaned by wet wiping/cleaning, followed by thorough drying, and then HEPA vacuumed. A satisfactory encapsulant (lockdown material) shall be applied to all surfaces from which friable asbestos has been removed.

3. The exterior of disposal bags, drums, and other containers shall be vacuumed and washed free of all visible asbestos fibers before their removal from the work area.

D. Asbestos-Containing Materials (Using Glovebag Removal Methods, if applicable):

1. All glovebag removal operations shall be conducted in accordance with 29 CFR 1926.1101 and applicable state regulations. Glovebags cannot be slid on pipes or reused.

E. Encapsulation:

1. After all asbestos-containing material is removed, seal the surface with an approved encapsulation material. Encapsulation materials shall be applied after clearance visual inspection has been performed by the Asbestos Project Monitor. The Contractor shall inform the Designer whenever any asbestos-containing materials cannot be removed, whether in total or in part prior to encapsulating.

2. The encapsulant shall be prepared and applied according to the manufacturer's specifications. A Material Safety Data Sheet (MSDS) must be submitted to Owner and the Designer for acceptance for the encapsulant prior to its use at the Project Site. A copy of the MSDS must be available to the workers and the workers shall wear appropriate personal protective equipment as designated on the MSDS during the preparation and application of the encapsulant.

3.11 WORK AREA CLEANUP, DECONTAMINATION AND WASTE DISPOSAL

A. General Requirements

1. After all asbestos-containing or asbestos-contaminated materials have been removed, remove all wastes and perform a final cleanup and decontamination of each work area. Final cleaning shall be performed only after all waste is packaged and removed, but before reinstalling or demolishing any equipment, or dismantling any barrier, Decontamination Facilities, or protective coverings. Cleaning shall be subject to the approval of the Asbestos Project Monitor based on a visual inspection, surface dust wipe tests (if necessary), and air testing.

B. Cleaning Methods and Approvals

1. All waste containers and removal equipment shall be thoroughly cleaned with a HEPA-filtered vacuum, decontaminated with the use of amended water, and then promptly removed from the work area.

2. All surfaces in the work area shall be thoroughly wiped/washed clean and, after drying, thoroughly decontaminated with a HEPA-filtered vacuuming device then encapsulated.

3. After cleaning, the Asbestos Project Monitor shall inspect the work area. To facilitate scheduling of inspections and air tests, the Contractor shall notify the Asbestos Project Monitor of the anticipated completion of the final work area cleaning at least 48 hours in advance.

4. If any visible waste or fibers are observed within the work area during the inspection, the Contractor shall perform additional cleanup and decontamination.

5. If the air sample results are above the Air Quality Standard of 0.010 f/cc as measured by PCM analysis, the Contractor shall perform additional cleaning and decontamination, and

the inspection and air tests shall be repeated at the Contractor's expense.

6. If the air sample results are below the Air Quality Standard of 0.010 f/cc, the Designer shall give approval for the Contractor to remove all protective coverings, which do not comprise part of the work area seal, containment barrier, or Decontamination Facility.

7. Once these items have been properly packaged and removed from the work area as contaminated waste, package and properly dispose of all remaining plastic sheeting, disassemble and remove the Decontamination Facility and HEPA exhausts, and perform a final HEPA vacuuming and/or wet cleaning of all surfaces.

8. Upon completion of the cleaning, all temporary access openings shall be repaired and all unsafe conditions corrected.

C. Waste Disposal

1. General Requirements - All asbestos wastes (e.g., pipe lagging, sheetrock, floorings, transite, windows, roofings, asbestos-cement, etc.) must be handled, packaged, stored, transported, and disposed of as specified in this subsection, and in compliance with all federal, state, and local regulations and codes.

2. Waste Labeling - If waste containers are not already so preprinted, warning labels having waterproof print and permanent adhesive shall be affixed to the lid and/or sides of the containers, whether or not these containers are further packaged. Warning labels shall be conspicuous and legible, and conform to the latest OSHA, EPA, VT, and DOT labeling requirements.

3. Waste Packaging - All waste shall be thoroughly wetted when packaged and Contractor shall inspect each bag, drum or container to observe that water condensation is visible. Insufficiently wetted bags shall be opened, rewetted, and resealed inside a negative pressure enclosure. When a waste bag is full, it shall be securely sealed with tape, and then placed in the designated temporary storage area inside of the work area.

D. Waste Container Removal and Disposal Documentation

1. It is the responsibility of the Contractor to determine current waste handling, transportation, and disposal regulations for the work site and for each waste disposal landfill. The Designer must approve the landfill destination. The Contractor must comply fully with these documents and all U. S. Department of Transportation and EPA requirements.

2. The Contractor, transporter and landfill shall document generation, transport and disposal of the waste at the designated landfill by completing a Waste Shipment Record and forwarding the original along with the Bill of Lading to Owner within the 30-day time period specified by USEPA.

3. To comply with the requirement that waste disposal at an approved landfill be documented, Contractor shall remove waste containers from work areas under the observation of Designer, and shall complete appropriate documentation for each load of waste removed from the site.

4. Measure the volume of each container or load of waste removed from the Site. The Contractor shall provide Owner with an estimated total volume of each load/container of waste and provide an accurate count of each type of container for each load BEFORE the waste is removed from the Site

5 Provide legal transportation of the waste to the disposal landfill, and complete or obtain all required licenses, manifests, dump slips, or other forms. Proper truck placarding must be performed in accordance with USDOT regulations. Legible copies of all forms or licenses, and the signed original of the Waste Disposal Form (e.g., Asbestos Waste Shipment Record) for each waste load, shall be given to Designer.

6. Waste may not be transported to or temporarily stored at any off-site storage area owned by Contractor. All asbestos waste generated during this Project shall be secured onsite until shipping directly to the waste disposal facility. In addition, no asbestos waste generated from other sites not associated with this project shall be transported, stored, or shipped with asbestos waste generated from this Site.

3.12 MONITORING, TESTING AND INSPECTIONS

A. All monitoring, with the exception of Contractor personnel monitoring, will be performed by the Asbestos Project Monitor. The Contractor is responsible for personnel monitoring in compliance with OSHA and VOSHA regulations. The Asbestos Project Monitor may, at his discretion, also conduct personnel monitoring on Contractor personnel. Monitoring by the Asbestos Project Monitor shall not relieve the Contractor of obligation to perform personal exposure assessments.

B. The performance and execution of the work will be closely monitored throughout the abatement process and throughout the demolition process by the Asbestos Project Monitor. The monitoring will be inside the work areas, demolition sites and the surroundings to ensure full compliance with these specifications and all applicable regulations. The Contractor shall provide cooperation and support to the Asbestos Project Monitor throughout the abatement and demolition process. The continuous monitoring and checking may include air samples in the workspace, personnel samples at breathing levels for a number of workers to be determined solely by the Asbestos Project Monitor, air samples in the areas surrounding the work area and the outside, checking of the Standard Operating Procedures, Engineering Control System, Respiratory Protection System, labeling, packaging, transporting and disposal of asbestos, Decontamination Facilities and procedures and any other aspects of the abatement process that may impact the health and safety of the public or the pollution of the environment. The continuous monitoring and checking is further intended to document type and quantities of ACM removed and to document the Contractor's compliance with regulations and the Contract Documents.

C. The Contractor is responsible for meeting OSHA and VOSHA requirements for their personnel, including but not limited to, monitoring requirements, safety compliance and record keeping. Personal monitoring results from the previous day shall be posted each day, and legible copies of the results forwarded to the Asbestos Project Monitor.

D. Final Clearance air sampling will be performed by Phase Contrast Microscopy in accordance with VTDOH protocols in work areas where clearance sampling is required.

E. If the concentration of all the air samples taken inside the work area, as analyzed by the PCM method described in VRAC (VSA Title 18, Chapter 26), does not exceed 0.010 fibers per cubic centimeter of sampled air (f/cc), the removal shall be considered complete and the containment area dismantled.

F. If the concentration of any of the air samples taken inside the work area exceeds 0.010 f/cc, then the Contractor shall re-clean the work area and final air clearance testing shall be repeated. All costs associated with the collection and analysis of repeat air clearance samples due to elevated clearance fiber levels shall be paid for by the Contractor.

3.13 FINAL INSPECTION AND TESTING

A. After thorough cleaning and removal of all asbestos waste and Contractor's materials, tools and equipment, the Contractor's Asbestos Supervisor shall perform an initial inspection of the work area to determine if it is ready for a final visual inspection by the Asbestos Project Monitor. Once the Contractor has determined that the containment or regulated work area is ready for the final visual inspection, the Asbestos Project Monitor shall be notified no less than 24 hours in advance to schedule and perform the required final inspection and final clearance air testing. The Asbestos Project Monitor will visually inspect the workspace for the detection of any visible debris, dust, residue or contamination. The visual inspection shall be performed prior to applying lockdown encapsulation to surfaces. All surfaces shall be dry prior to beginning the visual inspection.

B. Following a successful visual inspection of the work area the Contractor shall encapsulate all surfaces within the work area. Following encapsulation of the work area and after a sufficient period of time has elapsed to allow complete drying of the work area, the final clearance air sampling will be performed by the Asbestos Project Monitor.

C. The final testing shall take place under active agitation of the air in the workspace with fans running, leaf blowers operating and any other means found suitable by the Asbestos Project Monitor during the final testing. Fans, leaf blowers, electrical power and extension cords necessary for final clearance air testing shall be provided by the Contractor and the Contractor shall cooperate with and assist the Asbestos Project Monitor. The analysis of all samples collected shall demonstrate that fiber levels do not exceed 0.010 f/cc by PCM.

D. After the specified post-abatement levels have been confirmed through the final testing specified herein, the plastic enclosure shall be removed, the exposed surfaces thoroughly wet cleaned and/or HEPA vacuumed, and the plastic, tape, material from equipment room and shower room bagged and disposed of as asbestos waste. A final check will be carried out by Owner's Asbestos Project Monitor to ensure that no dust or debris remain on surfaces as the result of asbestos removal and related activities and containment dismantling operations. Critical barriers, HEPA exhaust units and decontamination facilities shall remain in place until all final cleaning and clean-up operations have been completed and all other containment dismantling has been completed.

E. After achieving the level of cleanliness and decontamination as specified herein and as confirmed by the final testing and checking, the Asbestos Project Monitor will thoroughly inspect the work areas jointly with the Contractor to determine whether any damage has been done to any building component, finish, equipment or any other part of the work space or property that will not be

subsequently demolished or have been specifically designated for salvage. A final inspection report shall be prepared jointly between the Asbestos Project Monitor and the Contractor detailing the list of items to be fixed by the Contractor.

END OF SECTION

Asbestos Abatement Work Plan
Demolition of Structurally Unsound Former Jones & Lamson Facility
160 Clinton Street, Springfield, VT

This Asbestos Abatement Work Plan (Abatement Plan) is being submitted on behalf of the property owner, the Southern Windsor County Regional Planning Commission, requesting that the former Jones & Lamson (J&L) Facility located at 160 Clinton Street in Springfield, Vermont be demolished with asbestos containing materials (ACM) remaining in the building. The J&L Building has been abandoned and neglected for many years. The roof is collapsed or is failing throughout the majority of the building. This roof failure has caused structural elements of the building to deteriorate to the point of eminent failure, making the building unsafe to occupy or perform work. Due to the inherent risks and dangers to the community and first responders, a demolition order for the building has been issued by the Springfield Fire Department. The order, issued by Fire Chief Russ Thompson and dated September 28th, 2016, is included as Attachment I.

ACM is located throughout the building. Locations and condition of accessible ACM, lead containing paint and other hazardous materials (OHM) have been identified in ECSs *Regulated Building Material Survey Report, Former Jones & Lamson Facility, 160 Clinton Street, Springfield, Vermont* dated June 15, 2016, and included as Attachment II. The building is considered unsafe for workers to attempt to remove regulated asbestos containing materials (RACM) from the facility prior to demolition and will be demolished with the RACM in place. This Abatement Plan is required due to the deteriorated condition of the site structures and meets the regulatory requirements set forth in 40 CFR Subpart M – National Emission Standard for Asbestos. During building demolition and load out of debris, building materials will be kept adequately wet at all times. This Abatement Plan shall provide direction for contractors to perform the demolition and bulk loading operation without causing a release of asbestos to the environment and to ensure compliance with all other Vermont and EPA NESHAP asbestos handling regulations.

Mr. Michael F. Delaney, (VT Asbestos Project Designer (APD) No. PD190594) of ECS developed these specific work practices and engineering controls that shall be implemented by contractors, sub-contractors and consultants, to ensure that no release of asbestos emissions occurs during the asbestos abatement, demolition and bulk loading operation. Work will be conducted by licensed and accredited personnel. A licensed asbestos abatement contractor and personnel will establish and maintain regulated areas, maintain engineering controls, perform demolition and waste handling operations and render a work product satisfactory to requirements of this Abatement Plan. A licensed Vermont Asbestos Project Monitor (APM) will verify compliance with this Abatement Plan and perform necessary perimeter air monitoring and visual inspections during and following the work to ensure compliance with all applicable regulations and the terms of this Abatement Plan. All regulated work areas shall remain regulated work areas until inspected by the APM.

By performing work pursuant to this Abatement Plan, the owners and their contractors, subcontractors and consultants acknowledge and agree that failure to strictly comply with all of the plan provisions and conditions stated herein may result in immediate revocation of this Abatement Plan and that all parties may be subject to enforcement action by the Vermont Department of Health Asbestos Program (VTDOH).

The conditions and work practices detailed in this Asbestos Abatement Work Plan apply to areas determined to be structurally unsound and unsafe for workers to attempt to remove RACM from the facility prior to demolition. "Conventional abatement" in accordance with Vermont Regulations for Asbestos Control (VRAC) will be performed in structurally intact locations and in areas made safe by select demolition activities.

A variance is requested from the following Vermont Regulations for Asbestos Control (VRAC) sections for the completion of this work;

2.4.2 (A): Requiring acceptable final air-clearance results.
2.4.2 (B): Requiring air-tight barriers.
2.4.2 (C): Requiring moving objects and pre-cleaning.
2.4.2 (D): Requiring covering of floors.
2.4.2 (E): Requiring covering of walls.
2.4.2 (G): Requiring shutdown of HVAC equipment.
2.4.2 (I): Requiring HEPA vacuuming and lockdown encapsulate.
2.4.2 (J): Requiring negative pressure ventilation.
2.4.2 (Q), (R), (S), (T): Requiring clearance air sampling.

Related Documents and Information

1. Abatement and Demolition of the Former Jones and Lamson Buildings, 160 Clinton Street, Springfield, VT, Project Demolition Specifications prepared by Weston & Sampson.
2. Regulated Building Material Survey Report, Former Jones & Lamson Facility, 160 Clinton Street, Springfield, Vermont dated June 15, 2016, prepared by Environmental Compliance Services, Inc. (ECS).
3. Structural Engineering Observations and Recommendations for Environmental Sampling and Testing report dated May 20, 2016, prepared by Heritage Engineering.
4. Structural Observations, Jones & Lamson Building, report dated June 20, 2013, prepared by Heritage Engineering.

The following conditions and work practices shall be strictly followed during the course of the asbestos demolition and bulk loading operation:

1. The Asbestos Abatement Contractor shall submit a written permit application/notification to the VTDOH 10 working days in advance of the abatement. The project shall not start until the abatement contractor has received the project permit.

2. The Asbestos Abatement Contractor shall submit a completed U.S. EPA Notification of Demolition and Renovation at least 10 working days in advance of demolition, salvage and abatement activities.

3. The APD and APM shall review all aspects of this Abatement Plan with each contractor, sub-contractor and consultant prior to commencing any work pursuant to this Abatement Plan. A written record of each entity attending the review shall be kept on site by the APM conducting the review.

4. A site specific health and safety plan will be developed for the remediation and demolition phase of the project. A copy of the H&S Plan shall be provided to the VTDOH once available. All contractors and sub-contractors shall comply with all safety requirements, directives and instructions issued by city, state and federal health and safety officials. Failure to comply with such directives shall immediately result in the revocation of this Abatement Plan.

5. An asbestos abatement contractor holding a current and valid Asbestos Abatement Contractor Entity license issued by the VTDOH shall be on site at all times during the asbestos demolition and bulk loading operation. The employees of the asbestos contractor shall also hold current and valid licenses issued by the VTDOH as either asbestos workers and or asbestos supervisors.

Employees of the demolition contractor working inside the regulated work area, including heavy equipment operators, shall hold current asbestos awareness training prior to disturbing any ACM.

6. The contractor shall secure the site as detailed in the project Specification Sections 02820 - Chain Link Fence and 02821 – Temporary Chain Link Fencing and as noted on Sheet G-1. A regulated work area shall then be established using asbestos warning signs and asbestos barrier tape and physical barriers to prohibit unauthorized access into the work area during the demolition and bulk loading operation. Egress to the regulated area will be facilitated through a three stage decontamination facility installed contiguous to the regulated area (refer to Appendix "A" of VRAC). Equipment, including the exterior of waste containers and their transport vehicles, will be decontaminated before removal from the regulated area in a separate truck wash with collection system. The contractor shall include in the asbestos abatement permit application a project diagram showing the locations and delineations of the chain link fencing, regulated area boundaries, decontamination facility(s), and truck wash facility(s).

7. Demolition of the building shall begin at the eastern portion (rear) of the building, commencing in a direction from the east boundary Black River towards Clinton Street. Perimeter building walls facing Bridge Street and Clinton Street shall remain in place, as long as feasible, to provide a barrier to the work area. Demolition is limited to above grade structures. The concrete slab shall remain. Refer to Abatement Plan A-1 for areas requiring "conventional abatement" prior to demolition

8. Prior to beginning demolition activities, the contractor shall provide a plan for review by the Engineer and Owner, showing a grid overlaying the building labeled in order of anticipated demolition or a plan with sufficient detail, describing the sequencing of abatement and building demolition in a controlled approach to the extent that is reasonably possible. The contractors plan shall also show locations of personnel and equipment decontamination stations and waste segregation and disposal staging areas.

9. Each day prior to commencement of demolition activities, a wind assessment will be made and the weather forecast checked by the competent Vermont-licensed Asbestos Supervisor. Demolition and cleanup activities shall not take place during periods of sustained wind above 20 MPH. Periodic wind assessments will be collected throughout the work day, or whenever changes in weather conditions dictate. Wind data and weather delays shall be included in the contractor's daily log of site activities.

10. The abatement contractor shall pre-soak building areas the day prior to beginning demolition activities and assure building materials are kept adequately wet at all times, starting with the demolition process, through site cleanup, transport and final disposal. Dedicated wetting nozzles for applying water amended with a chemical wetting agent shall be used when pipe wrap is encountered. The contractor shall include in the asbestos abatement permit application disclosure of the type(s) of amending agents to be incorporated in the project as well as a signed statement of assurance from a principal owner that such wetting agents will be used as appropriate.

11. The abatement contractor shall develop a written plan for the containment and management of demolition wastewater. The abatement contractor is advised to refer to the EPA document "Guidelines for Enhanced Management of Asbestos in Water at ordered Demolitions". At a minimum, water control measures will be installed at the extent of the regulated work area to collect water used during removal and prevent it from migrating outside of the regulated work area. Prior to discharging any water from the site, the contractor shall provide documentation of water discharge approvals from the local wastewater authority. No water shall be disposed of onto the ground's surface or subsurface. The contractor shall include in the asbestos abatement permit application a copy of the demolition wastewater containment/management plan. Copies of

written approvals from the local wastewater authority must be forwarded to the Department upon receipt.

12. Large capacity water hoses shall be used during all phases of the demolition and loading operation to ensure that the release of asbestos fibers is reduced to no visible emissions in accordance with EPA's NESHAP regulations. High reach boom lifts or other means may be utilized to concentrate water on demolition areas. Hookups to fire hydrants or water tankers are required to meet this standard. Garden hoses are not acceptable. Water runoff control shall be implemented to ensure the capture and containment of all asbestos-contaminated water from the Site. Asbestos-contaminated water must pass through filters capable of capturing and containing particles greater than or equal to five (5) microns in size, before disposal to a sanitary sewer is permitted. If a lined collection pit is utilized then following all demolition and cleanup operations the liner shall be removed and disposed of as asbestos-containing waste and three (3) inches of soil shall be excavated from the pit and disposed of as asbestos-containing waste.

13. The abatement contractor shall use equipment of sufficient size to ensure a controlled demolition operation and minimize risk to personnel. All equipment and personnel associated with the asbestos demolition and bulk loading operation shall be fully decontaminated on a daily basis and before being released to other service, or shall remain inside the regulated area.

14. An APM holding a current license issued by the VTDOH shall perform perimeter air monitoring of the ambient air around the circumference of the work area. This perimeter air monitoring shall be performed on a continuous basis during the asbestos demolition and bulk loading operation. Attention shall be paid to the downwind sector as well as to all adjacent properties, streets and walkways to ensure that the circumferential monitoring points coincide with these sensitive receptors. The consultant shall have a minimum of four (4) air monitoring stations however more stations may be required to accomplish adequate monitoring between the Site and all of the sensitive receptors. The APM shall also verify the frequency and effectiveness of wetting operations and note visual dust assessments in the field assessment and daily activities log to be completed daily for the project.

15. On-site analysis of the air samples shall be performed daily by the APM and results reported immediately to the asbestos supervisor, so that corrections in the work practices can be made, if required. If the air monitoring results exceed an airborne fiber concentration of one - one hundredth fiber per cubic centimeter (0.010 f/cc) of air, then all work shall stop. The work methods shall be evaluated by the APM and the Asbestos Site Supervisor prior to continuing any further work. VTDOH shall be notified by telephone by close of business (5:00 p.m.) on that same day of the air monitoring exceedance and the updated emission control procedures. All perimeter air monitoring shall be performed by properly trained APM's who hold a current license issued by the VTDOH. All sample analyses shall be performed by analysts who are properly trained by holding a NIOSH Course 582 or 582 Equivalent certification. The analyst shall also be a successful participant in the American Industrial Hygiene Association's Asbestos Analytical Registry (AIHA's AAR), deemed "proficient" in the current round of the Proficiency Analytical Testing (PAT) program or alternatively, be an employee of a laboratory, which holds a current and valid license issued by the VTDOH as a Field Analyst, and said laboratory shall also be accredited with either the AIHA or National Voluntary Laboratory Accreditation Program (NVLAP). PCM air samples with a fiber concentration exceeding one - one hundredth fiber per cubic centimeter (0.010 f/cc) of air shall be submitted for confirmatory analysis by TEM.

16. The Society for Protective Coatings (SSPC) has published guidelines (Technology Update No. 7) which include air sampling station siting strategies to use during assessment of potential emission generating construction activities. Based on these guidelines, two monitoring stations will be located in the downwind zone, approximately 50', if feasible, from work activities. The health center located to the northwest, Artisan Surfaces abutting the building to the south, and businesses to the west across Clinton Street, including a gas station and the Springfield Police Department, are the nearest potential receptors. The siting strategies for additional air sampling stations will be based on proximity of these receptors, work zones and wind direction. The specific monitoring locations will be determined by the APM prior to the initiation of removal activities for the day. The monitoring stations will be adjusted as needed, to adapt to changes in population needs, wind direction, and work activities on site. The locations for stations may also be moved short distances as needed to avoid proximity to onsite truck traffic and offsite traffic patterns and other activities.

    All perimeter air samples shall be collected in the general breathing zone, which for the purpose of this Abatement Plan, is located at a minimum of forty-eight inches (48") and a maximum of seventy-two inches (72") above the ground level. Sampling stations shall be portable and shall be moved as demolition activities and wind directions change to ensure monitoring points coincide with the most sensitive receptors. All samples shall be collected utilizing high flow pumps and shall be collected at a flow rate between eight and sixteen liters per minute (8-16 LPM), with a minimum volume of 1100 liters per sample. The device used to measure the flow rates for the perimeter air monitoring samples shall have been calibrated by a primary calibration device within six (6) months of utilization at the Site. A record of the calibration record for each of the measurement devices used at the Site shall be kept at the Site by each consultant for the duration of the project and a copy of each calibration record shall be submitted to VTDOH prior to commencing any work pursuant to this Abatement Plan, and shall accompany the air monitoring data required in Condition 30, below.

    All air filter cassettes shall be changed periodically to prevent particulate overloading. Each air filter cassette shall have the start and stop time and associated start and stop flow rates recorded in the consultant's Site log for review by VTDOH. Air monitoring series which repeatedly reveal samples that are overloaded with particulate and cannot be analyzed shall be considered to be in noncompliance with this Abatement Plan and potentially subject the facility owners, and their contractors and consultants, to enforcement action by VTDOH. The asbestos contractor shall provide sufficient sources of one hundred ten volt alternating current (110v AC) for use by APM and/or VTDOH personnel at the Site. These power sources shall be properly inspected and protected by ground fault circuit interrupters (GFCI's).

17. No work pursuant to this Abatement Plan shall commence unless the APM is at the Site and all air monitoring stations, both perimeter and employee monitoring, are in full operation.

18. Appropriate PPE must be utilized whenever demolition and/or general cleanup operations are occurring. This includes at a minimum, $^{1}/_{2}$ face HEPA filtered respirators, full body disposable work suits, etc. All personnel entering the regulated asbestos abatement work area must abide by the entry/exit procedures set forth in VRAC Appendix A. Street clothes and personal footwear is not permitted.

19. Contractors performing asbestos handling at the Site shall perform employee air monitoring in accordance with VRAC 2.3.4 and the NIOSH 7400 method throughout all phases of the cleanup process. All personal air sampling results must be provided to the VTDOH on a weekly basis, All employee air monitoring samples shall be collected in the breathing zone, which for the purpose of this Abatement Plan, is located at a maximum of twelve inches (12") from the nose and mouth of each individual. Each sampling pump shall be calibrated to operate at a flow rate of two to

four (2.0 to 4.0) liters of air per minute. The device used to measure the flow rates for the employee monitoring samples shall have been calibrated by a primary calibration device within six (6) months of utilization at the Site. Air filter cassettes shall be changed periodically during each day's employee monitoring to prevent particulate overloading. A minimum of 275 liters of air per sample must be collected. Each air filter cassette shall have the start and stop time and associated start and stop flow rates recorded in each contractor's Site logbook for review by VTDOH. Sample results of each filter cassette shall be calculated and reported individually. Air monitoring series which repeatedly reveal samples that are overloaded with particulate and cannot be analyzed shall be considered to be in noncompliance with the Abatement Plan. The employee air monitoring shall be performed on a continuous basis during all phases of the work.

20. Analyses of the employee air samples shall be performed daily by analysts who are properly trained by holding a NIOSH Course 582 or 582 equivalent certification. The analyst performing the analysis of the employee monitoring samples shall also be a successful participant in the American Industrial Hygiene Association's Asbestos Analytical Registry (AIHA's AAR), deemed "proficient" in the current round of the Proficiency Analytical Testing (PAT) program or alternatively, be an employee of a laboratory, which holds a current and valid license issued by the VTDOH as a Field Analyst, and said laboratory shall also be accredited with either the AIHA or National Voluntary Laboratory Accreditation Program (NVLAP).

21. All employee air sampling analyses results shall be reported, in writing, to the APM and property owner, on the day following the date they were collected. If at any time the employee air monitoring results exceed the Permissible Exposure Limit (PEL) for asbestos, then all activity at the Site shall halt in order to evaluate the work and to institute necessary changes in the work procedures.

22. All of the commingled asbestos demolition debris shall be disposed of as asbestos-containing waste. This material shall be thoroughly wetted during demolition and shall be kept wet until bulk loaded. This asbestos-containing waste shall be live loaded into trucks or roll-off dumpsters, which have been lined with a minimum of two (2) ten-mil (0.010 inch thick) poly liners. These liners shall be of sufficient size so that they can be sealed across the top of the load in an overlapping manner. During loading operations proper placards shall be displayed pursuant to 40 CFR Part 61. After sealing the exterior liner, it shall be properly labeled.[1] None of the asbestos-containing waste shall remain on the ground or in a dumpster or truck in an uncovered state overnight.

23. The building debris shall be maintained in large sections during demolition and not crushed or compacted in any way. The equipment operator may "heel down" once on each bucket of waste placed into the dumpster to settle the load and prevent shifting during transport. Metal materials that are to be bulk loaded may tear the poly liners and shall be placed in the center of the waste container or segregated for cleaning and recycling. Materials slated for segregation from the asbestos waste stream must be separated before being place within the asbestos waste dumpster.

24. The asbestos-containing waste shall not be crushed or compacted by hydraulic or other means. Large metal components such as un-insulated steel I-beams, if present, that are to be recycled, shall be washed and thoroughly decontaminated. Following decontamination of large steel components, they shall be visually inspected by the APM. A list of these components and the results of all visual inspections of such components shall be maintained in the APM's Site logbook.

[1] Here and throughout the Asbestos Abatement Work Plan "properly labeled" means pursuant to 40 CFR Part 61.

25. If it is necessary to leave a partially filled asbestos-containing waste roll-off or truck at the Site overnight, then it shall remain in the regulated work area, be wetted, covered and secured.

26. The asbestos-containing waste shall be maintained on the building slab and be loaded into waste containers as it is produced. Ground that will be impacted by asbestos-containing waste shall be covered with at least one-layer of six-mil (0.006 inch thick) poly sheeting. The contractor shall refer to the Demolition Specifications for restricted slab areas over the basement and PCB contaminated areas. Asbestos-containing waste shall not be stockpiled and shall not be crushed or compacted. If by unforeseen occurrence all asbestos-containing waste material generated is not loaded prior to the end of the shift, due to a delay in vehicle availability, inclement weather, etc., then the asbestos-containing waste shall be wetted and covered with at least one-layer of six-mil poly sheeting that has been secured to the ground. This asbestos-containing waste shall then be loaded the following day prior to the commencement of any further demolition operations. The poly covers shall likewise be disposed of as asbestos-containing waste and not stored or reused.

27. The contractors shall ensure that no water leaks from the trucks or roll-off dumpsters during transport to the landfill, and that the waste is covered at all times during transport. The trucks or roll-off dumpsters shall be in good condition with no holes or rusted out areas and with tailgates, which close tightly and are lockable. USDOT Class 9 placards shall be affixed to the exterior of each dumpster or truck prior to transport.

28. Following the completion of the demolition and removal of all of the bulk asbestos-containing waste material but prior to any further demolition, excavation or backfilling operations, the asbestos contractor shall collect, for disposal, all remaining waste, small debris and detritus accumulated around the Site and in the cellar holes, pits or slab openings. This material shall be collected by licensed asbestos workers wearing appropriate PPE, utilizing either HEPA vacuums or wet methods with squeegees and shovels. Dry sweeping shall not be employed. The remaining asbestos-containing waste shall then be sealed into leak-tight and properly labeled containers for disposal as asbestos-containing waste.

29. A schedule for in-process visual inspections shall be developed to gauge effectiveness of removal and cleaning operations. For building demolition work areas determined to be complete by the contractor, a final visual inspection shall be performed by the APM and Asbestos Site Supervisor to ensure that no remnant asbestos, commingled asbestos demolition debris, asbestos-contaminated water or any other suspected asbestos-containing waste remains in any cellar holes, pits or slab openings or on the ground around the work area. The results of this inspection shall be recorded in the individual's respective Site logbooks.

30. All documentation regarding worker training, air monitoring results, visual inspections and waste disposal shall be kept on Site for inspection by VTDOH personnel during the asbestos demolition and bulk loading operation. Copies of the documentation are to be supplied to the VTDOH by the owner, contractor and consultant on a weekly basis.

31. This abatement plan does not negate the responsibility of the property owner, the contractor, subcontractors and consultants from complying with all other applicable federal, state and local regulations.

32. This work plan applies specifically to the demolition of the former Jones & Lamson (J&L) Facility located at 160 Clinton Street in Springfield, Vermont. This work plan does not apply to any past or future demolition or asbestos handling operations at the Site. All other VTDOH regulations are in effect for the duration of this asbestos demolition and bulk loading operation.

33. The property owner or their representative shall distribute copies of this Abatement Plan to each entity involved with the project. A copy of this plan shall be kept at the Site for the duration of the project. A listing of all entities involved with the project shall also be provided to the VTDOH.

34. Should unforeseen Site conditions require changes to any of the procedures in this work plan, the owner may request an amendment or addendum to the Abatement Plan. Any request for changes shall be made to VTDOH in writing. None of the added or amended conditions shall be utilized at the Site until the request has been reviewed and accepted by VTDOH.

35. Should asbestos become released, property owners, their contractors, subcontractors and consultants may be subject to enforcement action by the VTDOH, and may be held responsible for any subsequent abatement of the release.

36. VTDOH may, at its sole discretion, add conditional requirements or revoke this Abatement Plan.

37. This Abatement Plan is valid for two years after date of acceptance by VTDOH and shall be deemed expired at the end of one year. If activities are to continue past the expiration date then the VTDOH shall be notified in writing at least ten (10) days in advance. Continuance of the work under the provisions of the Abatement Plan shall be the sole determination and approval of VTDOH.

Attachment I

Former Jones & Lamson Facility
Demolition Order

SPRINGFIELD FIRE DEPARTMENT

77 HARTNESS AVENUE
SPRINGFIELD, VERMONT 05156

September 28th 2016

Mr. Bob Flint
Executive Director
Springfield Regional Development Corporation
14 Clinton Street, Suite 7
Springfield, Vt. 05156

Dear Mr. Flint,

Pursuant to the authority granted to the Chief Engineer as stated in Title 20 sec. 2673 of the Vermont State Statutes and holding the position of Fire Chief for the Town of Springfield. Acting with due regard to the potential collapse of this undoubtedly unsound structure, with consideration of conflagration, environmental hazards and undue risk to citizens, firefighters and the municipal infrastructure. I order the demolition of the former Jones and Lamson building located at Lot 1A, 160 Clinton Street.

Russ Thompson
Fire Chief
Town of Springfield

ASBESTOS ABATEMENT NOTES:

(1) THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ASBESTOS CONTAINING MATERIALS (ACM) BY MEANS OF "CONVENTIONAL ABATEMENT". OTHER HAZARDOUS MATERIALS SHALL BE PROPERLY HANDLED AND REMOVED PRIOR TO BUILDING DEMOLITION.

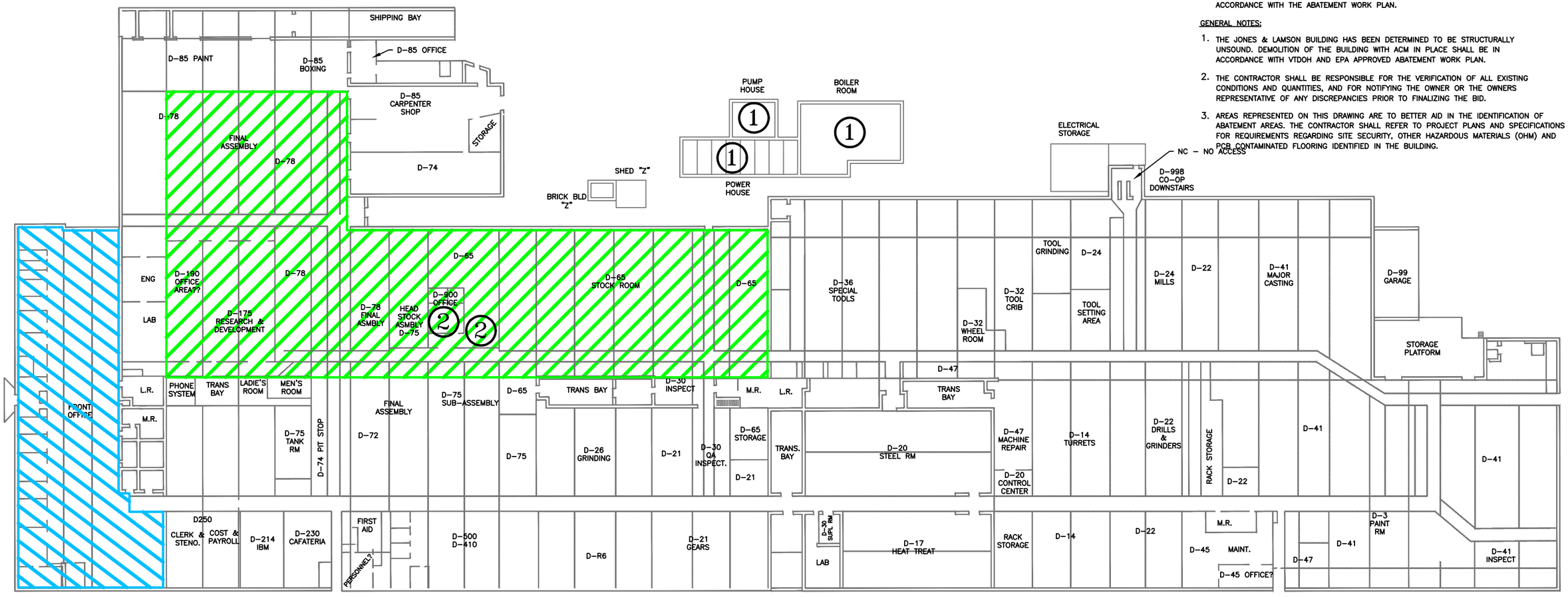
(2) PREVIOUSLY REMOVED LIGHT FIXTURE PILE IN THIS LOCATION SHALL BE PROPERLY HANDLED AND DISPOSED PRIOR TO DEMOLITION. OTHER HAZARDOUS MATERIALS IDENTIFIED IN THE BUILDING SHALL BE REMOVED PRIOR TO DEMOLITION OR SEGREGATED FROM THE DEMOLITION DEBRIS.

THE CONTRACTOR SHALL REMOVE AND DISPOSE OF APPROXIMATELY 2,000 LINEAR FEET OF THERMAL SYSTEM INSULATION (TSI) FROM ACCESSIBLE AREAS PRIOR TO DEMOLITION OF THE BUILDING IN ACCORDANCE WITH THE ABATEMENT WORK PLAN.

THIS AREA WAS PREVIOUSLY ABATED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF APPROXIMATELY 20 LINEAR FEET OF TSI PRIOR TO DEMOLITION OF THE BUILDING IN ACCORDANCE WITH THE ABATEMENT WORK PLAN.

GENERAL NOTES:

1. THE JONES & LAMSON BUILDING HAS BEEN DETERMINED TO BE STRUCTURALLY UNSOUND. DEMOLITION OF THE BUILDING WITH ACM IN PLACE SHALL BE IN ACCORDANCE WITH VTDOH AND EPA APPROVED ABATEMENT WORK PLAN.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION OF ALL EXISTING CONDITIONS AND QUANTITIES, AND FOR NOTIFYING THE OWNER OR THE OWNERS REPRESENTATIVE OF ANY DISCREPANCIES PRIOR TO FINALIZING THE BID.
3. AREAS REPRESENTED ON THIS DRAWING ARE TO BETTER AID IN THE IDENTIFICATION OF ABATEMENT AREAS. THE CONTRACTOR SHALL REFER TO PROJECT PLANS AND SPECIFICATIONS FOR REQUIREMENTS REGARDING SITE SECURITY, OTHER HAZARDOUS MATERIALS (OHM) AND PCB CONTAMINATED FLOORING IDENTIFIED IN THE BUILDING.



10 State Street
Woburn, MA 01801
(781) 246-8897
(781) 246-8950 FAX
ATC

W – N – E – S

PROJECT ADDRESS:
Jones & Lamson Plant
160 Clinton Street
Springfield, Vermont

FIGURE TITLE:
Abatement Plan

PROJECT NO.:	DATE:
01-224415	October 2016
DRAWN BY: BB	CHECKED BY: MD
0 NTS 0	FIGURE NO.: **A-1**

WHERE BUSINESS AND THE ENVIRONMENT CONVERGE

REGULATED BUILDING MATERIAL SURVEY REPORT
FORMER JONES & LAMSON FACILITY
160 CLINTON STREET
SPINGFIELD, VERMONT

Prepared for:
Southern Windsor County Regional
Planning Commission
P.O. Box 320
Ascutney, VT

Project No. 01-224415.00
Document No. 46227
June 15, 2016

Prepared by:
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EXECUTIVE SUMMARY

Environmental Compliance Services, Inc. (ECS) performed investigation and sampling activities on May 4th and 5th, 2016 for asbestos containing materials (ACM), lead containing paint and coatings (LCP) and other regulated or hazardous materials (OHM) at the former Jones & Lamson (J&L) facility located at 160 Clinton Street in Springfield, Vermont. Based on information provided to ECS, the facility has been vacant since 1985 and is severely dilapidated. Due to concerns over inspector safety and structural deficiencies previously identified in the Main Building, many areas where inaccessible at the time of the survey. Areas which were not safe to access, including building roofing systems, were not surveyed. The intent of the survey was to assess and identify regulated materials that may be disturbed during proposed building assessment and demolition activities. Survey findings for the subject site are presented in the body of this report.

Following a review of historical asbestos survey and inspection data for the site, ECS surveyed accessible areas of the interior and exterior of the Main Building and surrounding buildings. During ECS's investigation, 41 bulk samples of suspect ACM were collected. These samples were analyzed by an accredited laboratory for asbestos content. ECS also evaluated accessible materials that had been previously sampled and determined to be ACM. A preliminary inventory of ACM and suspect ACM has been prepared and is presented in Table 3.1.A (Inventory of ACM and Assumed ACM). Results of sampling performed by ECS are presented in Table 3.1.B (Suspect Materials Sampling Results).

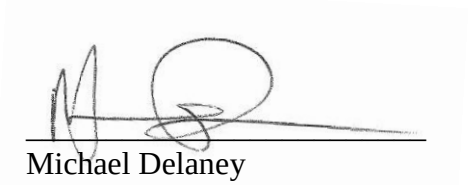
ECS collected 13 paint chip bulk samples from various accessible painted surfaces throughout interior and exterior spaces of the building. These samples were analyzed by an accredited laboratory for total lead content. Analytical results did indicate lead was detected in eleven samples collected. Findings are presented in Table 3.2.

A visual survey (no sampling) of various hardware, machinery and building systems that may require special handling and/or disposal prior to demolition activities was also conducted. This included light fixtures/ballasts and various operating systems that may contain Polychlorinated Biphenyls (PCBs), mercury or other recognized hazardous materials. Findings are presented in Table 3.3.

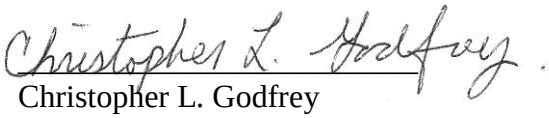
Analytical data sheets for all samples collected are provided as Appendix A.

The following report summarizes the independent conclusions representing ECS's best professional judgment based on information and data available to us during the course of this investigation. Factual information regarding operations, conditions, and test data provided by the Client, owner, or their representative has been assumed to be correct and complete. Additionally, the conclusions presented are based on the conditions that existed at the time of the assessment.

Inspector Signature:



Michael Delaney
VT Asbestos Inspector #AI190594
VT Asbestos Project Designer #PD190594
Senior Project Manager



Christopher L. Godfrey
VT Asbestos Inspector/Management Planner #MP858950
VT Asbestos Project Designer #PD858950
VT Asbestos Project Monitor #PM858950
VT Asbestos PCM Analyst #PA858950
Associate, Senior Project Manager

1.0 INTRODUCTION

This survey was performed at the request of the Southern Windsor County Regional Planning Commission for the purpose of identifying hazardous building materials that may be impacted during the proposed demolition of the former Jones & Lamson (J&L) facility located at 160 Clinton Street in Springfield, Vermont. The scope of the survey included the vacant Main Building, the Pump House, Power House and Boiler Plant and collapsed building in the rear of the facility. The occupied and connected building to the south of the Main Building was not included in the scope of this survey.

Regulatory requirements and survey practices applicable to demolition projects in Vermont are as follows, but not limited to the following:

Asbestos

- The United States Environmental Protection Agency (USEPA) National Emissions Standard for Hazardous Air Pollutants (NESHAPs, 40 CFR 61, Subpart M) requires facilities be inspected by competent persons for the presence of asbestos containing materials (ACM) which could or will be disturbed during renovation, construction and demolition activities. Where quantities of ACM exceed 160 square feet or 260 linear feet, asbestos abatement (removal) is required.
- Vermont Regulations for Asbestos Control, V.S.A Title 18, Chapter 26.
- The Occupational Safety and Health Administration (OSHA) regulates asbestos worker protection under 29 CFR 1926.1101.

Lead

- Lead containing materials in a demolition stream have the potential to create a D008 Listed hazardous waste under 40 CFR Part 760 and 310 CRM 30.
- OSHA regulates construction worker exposure to any amount of lead under 29 CFR 1926.62.

Polychlorinated Biphenyls

- The USEPA regulates PCB under its Toxic Substances Control Act, 40 CFR 761.

Hazardous Materials/Universal Wastes

- Handling, Transportation & Disposal of hazardous materials including asbestos, lead, PCB, Universal Wastes and other disposal ban items is regulated by the USEPA, United States Department of Transportation (USDOT), and local and state regulations.

1.1 LIMITATIONS

The facility has been vacant since 1985 and is severely dilapidated. In 2013, Heritage Engineering conducted a structural evaluation of the Main Building and determined that an immediate risk of

casualty from falling debris and glass was present in much of the building. The Engineers recommendations included prohibiting access until corrective actions to the building are performed. The recommendations included removal of concrete roof panels and glass, and removal or bracing of deteriorated walls throughout the Main Building. At the time of the ECS survey, none of the recommendations from the 2013 structural evaluation had been implemented.

Included with the current building evaluation scope, Heritage Engineering has been retained by ECS to update their structural observations originally made in 2013. ECS's survey of the facility coincided with Heritage Engineering's building inspection. Continued roof failure and environment impacts to the Main Building made many areas off limits and restricted up close evaluation of building materials.

In accessible areas of the Main Building, Power House, Boiler Plant and smaller out buildings, non-destructive sampling of building materials was performed. The term "non-destructive sampling method" refers to a method of collecting samples that does not significantly impact interior or exterior finishes of the building. Surveys for the presence of ACM are therefore limited to those materials accessible by non-destructive sampling methods. ACM may be present in materials not accessible by this sampling methodology, and may be encountered during renovation or demolition of the structure. The term "destructive sampling method" refers to the method of collecting samples that would require destruction of various building systems (i.e. wall cavities, ceilings, flooring materials, roofing) for the purpose of locating hidden heating, plumbing, or other building components that may contain ACM. Destructive methods are recommended for properties slated for demolition. Additional limitations may exist for both destructive and non-destructive sampling methods. Certain locations of the building may be physically inaccessible, or inaccessible due to electrical, mechanical, structural, or other hazards which might exist in the structure at the time of the survey.

Suspect ACM subsequently identified or encountered in physically inaccessible areas during demolition and/or demolition activities and not listed in this report should be assumed to contain asbestos unless testing confirms otherwise.

The following areas were not included in the scope of work at the time of this evaluation.

- Materials located in restricted or unsafe locations,
- Materials only accessible through structural demolition;
- Materials entombed or beneath concrete;
- Roofing materials; and,
- Materials below-grade.

2.0 METHODS AND MATERIALS

2.1 ASBESTOS

As part of this survey scope of work, the owner provided ECS with historical asbestos survey and inspection data for the building. Prior to initiating field survey and sampling activities, ECS reviewed this historical information. The information included 1995 and 2007 asbestos surveys completed by Catamount Environmental, Inc. and an asbestos survey completed by Cardno ATC in 2013. A Room Location Diagram (Figure 1), prepared by Cardno ATC and dated July 8, 2013, identifies the building rooms and area locations referenced in this report. This diagram is included as an attachment to this report.

During the ECS survey, samples were collected per regulations governing asbestos surveys. Samples were placed into plastic bags with an air tight seal. Labels were affixed to the sample bags with specific nomenclature.

Bulk samples were analyzed by Polarized Light Microscopy (PLM) using the USEPA/600/R-93/116 method. Sample analysis was conducted by ProScience Analytical Services, Inc., 22 Cummings Park, Woburn, Massachusetts (NVLAP Accreditation 2000090-0).

There are six minerals grouped into the term “asbestos”. Chrysotile, amosite, and crocidolite are the asbestos minerals most commonly found in building materials. ACM is defined as a material containing more than one percent (1%) asbestos by weight. ACBM is a subset of materials in the group ACM and are considered to be ACM that is found in or on interior structural members of a building. Materials found to be asbestos containing are listed in Section 3.0. Exact sample compositions are included in the laboratory reports or chains of custody found in Appendix A.

Descriptions, locations and estimated quantities of ACM or assumed ACM are shown on Table 3.1.A. (Inventory of ACM and Assumed ACM). Results of sampling performed by ECS are presented in Table 3.1.B (Suspect Materials Sampling Results).

PLM is the root method used for the identification of ACM. The USEPA Office of Research and Development (USEPA/ORD) has reviewed data from performance audits of various laboratories performing PLM. The results of that review indicated an unacceptable number of false negatives and positives for visual estimation of materials containing less than 10% asbestos. On the basis of those findings the NESHAP regulations were amended on November 20, 1990 (Federal Register, V.55, and N.224). The revisions state that if the analyst detects asbestos in the sample and estimates the amount to be less than 10% by visual estimation, the parties legally responsible (owner or operator) for the building may (1) elect to assume the amount to be greater than 1% and treat the material as ACM or (2) require verification of the amount by point counting. Point counting is a technique used to quantify the amount of asbestos present in a sample on which PLM has already been performed. ECS recommends point counting re-analysis for asbestos values less than 10%, and where applicable, those results are reflected in this report. In instances where client authorization is not received for this re-analysis, PLM visual results indicating a trace or 1% value will be reported as assumed ACM as required by item (1) above. ECS did not submit samples for confirmatory PLM Point Counting analysis for this survey.

A similar situation exists for matrix bound fibers such as those found in floor tiles, mastics, and asphalt based materials. The organic matrix of these bulk samples may interfere with the identification and quantification of asbestos mineral content. These types of samples are generally referred to as Non-friable organically bound (NOB) materials. Transmission Electron Microscopy (TEM-NOB) is a method that utilizes a combination of special sample preparation techniques and high magnification to quantify asbestos content with greater accuracy than PLM. Currently only the State of New York has regulations requiring TEM-NOB re-analysis of suspect ACM for which negative or trace determination resulted from PLM analysis. Although additional cost is involved, ECS recommends TEM-NOB analysis under certain circumstances, as a state of the art means of survey. ECS submitted two samples for TEM-NOB analysis. The result of this analysis is summarized below:

- Window glazing samples 08A and 08B where submitted for TEM analysis and determined to be >1% asbestos.

2.2 LEAD CONTAINING PAINT (LCP

ECS collected 13 total paint chip samples from various painted surfaces throughout the interior and exterior of the building. These samples were subsequently submitted to ProScience Analytical Services, Inc. of Woburn, Massachusetts for total lead concentration determination. Laboratory results indicate the presence of lead in eleven paint chip sample analyzed. Paint chip data is provided in Table 3.2.

The U.S. Department of Housing and Urban Development (HUD) standards (24 CFR Part 35) and the USEPA Toxic Substances Control Act (TCSA) define LCP as layers of paint on an applicable surface having lead equal to or greater than 1.0 milligram per square centimeter (mg/cm^2) or 0.5% by dry weight. The OSHA Lead in Construction standard (29 CFR 1926.62) considers any level of lead to be potentially harmful when disturbed during demolition or construction. Various OSHA work practices and worker protection requirements are mandated depending on the nature of the disturbance.

2.3 OTHER HAZARDOUS MATERIALS

Observations of light fixtures/ballasts/transformers, various operating systems that may contain PCB, mercury, and/or oils were also performed. Representative light fixtures were accessed and the ballasts were inspected for the presence of PCB. Any mechanical systems encountered during this survey were inspected for leaks or residual staining related to a potential leak of stored oils, PCB and other internal fluids. Items that may contain coolants or refrigerants include at a minimum, refrigeration and freezer units, and air conditioner units.

Items that may contain mercury include fluorescent lights, thermometers, heating thermostats, and electrical switches. The majority, if not all, of these items are capable of being removed (with appropriate handling methods) intact for proper disposal or reuse. Inventories of these observations are found in Table 3.3.

3.0 RESULTS AND FINDINGS

The results of this survey are presented in tabular form. The data tables summarize the nature, distribution and estimated quantity of ACM, LCP and OHMs found during this survey. The tables are included as an attachment to this report and are as follows:

Inventory of ACM and Assumed ACM - Table 3.1.A.

ECS Suspect Materials Sampling Results - Table 3.1.B.

Lead concentrations for bulk samples collected from various painted surfaces - Table 3.2.

Other Hazardous Materials (OHMs) information - Table 3.3.

4.0 DISCUSSION AND INTERPRETATION

4.1 ASBESTOS

Response actions are based in part upon our current understanding of area usage or future usage at the time of the survey. Removal is always required where pending demolition will disturb ACM's. Any material discovered in the course of demolition activities, which is not identified in this report, should be presumed to contain asbestos until sampling shows otherwise. Section 1.1 Limitations details areas that were deemed inaccessible or were not included in the scope of work.

4.2 LEAD

The presence of lead associated with various painted surfaces was detected in 11 samples. Table 3.2 details locations and results of the materials tested.

4.3 OTHER HAZARDOUS MATERIALS

ECS conducted a visual survey (no sampling) of various hardware, machinery, and building systems which may require special handling and/or disposal prior to demolition activities. The results of the OHM Surveys are presented in Table 3.3. The majority, if not all, of these items can be removed (with appropriate handling methods) intact for proper disposal or reuse.

5.0 CONCLUSION

An asbestos abatement design and removal of items listed in Table 3.1.A will be required prior to any demolition work that would disturb these locations. Damaged friable and non-friable ACM are located throughout the facility and are rapidly degrading due to exposure to the elements. At the time of our observations, the majority of material and debris in the building was wet and did not emit dust when traversing accessible areas of the building. However, during times of dry conditions, openings in the building have the potential to create airflow through the building which may disturb friable ACM and debris. ECS recommends an asbestos design be prepared for any entry into the building due to the potential disturbance of friable asbestos. Entrants should also be trained and certified regarding the hazards associated with disturbance of ACM. Also, the recommendations outlined in Heritage Engineering's report *Structural Engineering Observations and Recommendations for Environmental Sampling and Testing*, dated May 20, 2016, should be reviewed and adhered by all parties utilizing this RBM Survey report for work at the site. Future entry into the building should include engineering controls to protect entrants from overhead fall hazards.

OSHA lead regulations will apply to any demolition operation (i.e. sanding, scraping, cutting, and welding) that would disturb painted surfaces which contain lead. Disposal of materials coated with paint containing lead is subject to the USEPA RCRA regulations. At the present time, federal and state regulations do not necessarily require that materials coated with lead-based paint be removed prior to demolition. However, wastes generated are required to be characterized prior to disposal. ECS recommends that TCLP testing be performed on the waste stream generated from demolition activities performed at the properties inspected.

Other Hazardous Materials listed in Table 3.3 should be removed before any demolition and/or demolition activities impact these materials. ECS recommends the preparation of a specification defining the handling and disposal of these materials.

TABLES

Table 3.1.A
Inventory of ACM and Assumed ACM

Description	Location	Material Class	Estimated Quantity
Main Building			
Red 9x9 Floor Tile and Associated Mastic	*Basement*	*Misc.*	*1,800 SF*
Window Glazing	*Basement*	*Misc.*	*20 LF / Window*
Door Caulking	*Room 1*	*Misc.*	*40 LF*
Floor Tile Debris on Floor	Rooms 2 and 17	Misc.	10 SF
Window Caulking	*Rooms 3- 16*	*Misc.*	*440 LF*
Dark Colored 9x9 Floor Tile and Associated Mastic	Room 9	Misc.	100 SF
Pipe Insulation, Associated Fittings and Debris	*Room 17*	*TSI*	*16 LF*
9x9 Floor Tile and Associated Mastic	*Room 17 Closet*	*Misc.*	*16 SF*
12x12 Floor Tile and Associated Mastic	*Room 17 Closet*	*Misc.*	*16 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 18*	*TSI*	*33 LF*
Black Adhesive under Ceramic Flooring	Room 18	Misc.	180 SF
Pipe Insulation, Associated Fittings and Debris	*Room 19*	*TSI*	*12 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 20*	*TSI*	*40 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 22*	*TSI*	*16 LF*
12x12 Floor Tile and Associated Mastic	*Room 22*	*Misc.*	*10 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 23*	*TSI*	*1,200 LF*
2x4 Ceiling Tile	*Room 23A*	*Misc.*	*360 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 24*	*TSI*	*32 LF*
Joint Compound and Associated Paneling	*Room 24*	*Misc.*	*460 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 27*	*TSI*	*58 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 28*	*TSI*	*84 LF*
Transite Panel	*Room 29*	*Misc.*	*250 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 29*	*TSI*	*1,100 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 30*	*TSI*	*86 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 31*	*TSI*	*30 LF*

Description	Location	Material Class	Estimated Quantity
Pipe Insulation, Associated Fittings and Debris	*Room 33*	*TSI*	*160 LF*
Transite Panel	*Room 33*	*Misc.*	*60 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 34*	*TSI*	*14 LF*
Transite Panel	*Room 34*	*Misc.*	*60 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 35*	*TSI*	*36 LF*
Transite Panel	*Room 35*	*Misc.*	*60 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 36*	*TSI*	*60 LF*
Transite Panel	*Room 36*	*Misc.*	*60 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 39*	*TSI*	*60 LF*
Transite Panel	*Room 39*	*Misc.*	*60 SF*
9x9 Floor Tile and Associated Mastic	*Room 40*	*Misc.*	*320 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 41*	*TSI*	*22 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 42*	*TSI*	*40 LF*
Transite Panel	*Room 42*	*Misc.*	*40 SF*
9x9 Floor Tile and Associated Mastic	*Room 44*	*Misc.*	*160 SF*
9x9 Floor Tile and Associated Mastic	*Room 45*	*Misc.*	*160 SF*
Transite Panel	*Room 46*	*Misc.*	*20 SF*
9x9 Floor Tile and Associated Mastic	*Room 46*	*Misc.*	*160 SF*
Transite Panel	*Room 47*	*Misc.*	*20 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 47*	*TSI*	*300 LF*
Transite Panel	*Room 48*	*Misc.*	*20 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 48*	*TSI*	*8 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 49*	*TSI*	*1,025 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 51*	*TSI*	*Not Determined*
Transite Panel	*Room 48*	*Misc.*	*20 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 52*	*TSI*	*65 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 53*	*TSI*	*850 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 54*	*TSI*	*800 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 55*	*TSI*	*25 LF*

Description	Location	Material Class	Estimated Quantity
Pipe Insulation, Associated Fittings and Debris	*Room 58*	*TSI*	*210 LF*
Cast in Place Ceiling Deck Panels and Debris, High Deck	Room 58	Misc.	16,000 SF
Resilient Sheet Flooring and Mastic	*Room 59*	*Misc.*	*120 SF*
Cast in Place Ceiling Deck Panels and Debris, High Deck	*Room 59*	*Misc.*	*120 SF*
Resilient Sheet Flooring and Mastic	*Room 60*	*Misc.*	*400 SF*
Cast in Place Ceiling Deck Panels and Debris, High Deck	*Room 60*	*Misc.*	*480 SF*
Resilient Sheet Flooring and Mastic	*Room 61*	*Misc.*	*120 SF*
Cast in Place Ceiling Deck Panels and Debris, High Deck	*Room 61*	*Misc.*	*120 SF*
Pipe Insulation, Associated Fittings and Debris	*Room 62*	*TSI*	*600 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 63*	*TSI*	*500 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 65*	*TSI*	*30 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 67*	*TSI*	*40 LF*
Pipe Insulation, Associated Fittings and Debris	*Room 68*	*TSI*	*40 LF*
Paper Insulation Associated with Light Fixtures	*Throughout*	*Misc.*	*Not Determined*
Transite	*2nd Floor Mezzanine*	*600 SF*	*600 SF*
Tank Insulation	*2nd Floor Mezzanine*	*160 SF*	*160 SF*
Pipe Insulation	*2nd Floor Mezzanine*	*115 LF*	*115 LF*
9x9 Floor Tile and Associated Mastic	*2nd Floor Mezzanine*	*500 SF*	*500 SF*
Paper Insulation Associated with Light Fixtures	*Throughout*	*Misc.*	*Not Determined*
Skylight Window Glazing and Debris	*Throughout*	*Misc.*	*Not Determined*
Roofing Debris	*Throughout*	*Misc.*	*Not Determined*
16 Paned Window Sash Glazing Compound	Throughout Interior and Exterior	Misc.	Not Determined
Door Caulking	*Exterior*	*Misc.*	*20 LF / Door*
Metal Brown Clad Window Caulking	*Exterior*	*Misc.*	*36 LF / Window*
Brick Expansion Joint Caulking	*Exterior*	*Misc.*	*48 LF*
20 Paned Window Caulking	*Exterior*	*Misc.*	*42 LF / Window*

Description	Location	Material Class	Estimated Quantity
9 Paned Window Caulking	*Exterior*	*Misc.*	*18 LF / Window*
Transite Panel Roof and Siding	*Exterior Room 24*	*Misc.*	*2,500 SF*
Roofing, Including Membrane, Flashing and Patching Materials	*Throughout Roofing System*	*Misc.*	*Not Determined*
Boiler House			
Int. Window Glazing Compound	Throughout	Misc.	200 LF
Pipe Insulation, Associated Fittings and Debris	*Throughout*	*TSI*	*150 LF*
Boiler Rope, Gaskets, Internal Components, Cement and Contaminated Insulation and Debris	*Throughout*	*TSI*	*3 Boilers*
Roofing, Including Membrane, Flashing and Patching Materials	*Roofing System*	*Misc.*	*1,000 SF*
Pump House			
Black Electrical Panel Cement Board	Throughout	Misc.	200 SF
Lg. Diameter Rope on Floor and Debris	Throughout	Misc.	500 SF
Roofing, Including Membrane, Flashing and Patching Materials	*Roofing System*	*Misc.*	*500 SF*
Sheds and Collapsed Buildings			
Ext. Window Glazing Compound	Collapsed Shed near Carpenter's Shed	Misc.	Not Determined
Roofing, Including Membrane, Flashing and Patching Materials	*Roofing Systems*	*Misc.*	*Not Determined*

Notes:

- SF = Square Feet, LF = Linear Feet
- *Materials in italics identified in historical surveys.*
- See Limitations Section for areas deemed inaccessible or not included in Scope of Work.
- Due to access restrictions, not all quantities from historical surveys verified.

Table 3.1.B
Suspect Materials Sampling Results

Field ID	Description	Location	Result
01A, 01B	Black Electrical Panel Cement Board	Power Plant Building	20% Chrysotile
02A, 02B	Lg. Diameter Rope on Floor	Power Plant Building	75% Chrysotile
03A, 03B	Dark Colored 9x9 Floor Tile	Main Building, Room 9	10% Chrysotile
04A, 04B	Floor Tile Mastic assoc. w/03	Main Building, Room 9	5% Chrysotile
05A, 05B	Floor Tile Debris on Floor	Main Building, Room 2	3% Chrysotile
06A	Paper under Wood Siding	Collapsed Bldg. near Carpenter's Shed	NAD
06B	Paper under Wood Siding	Collapsed Bldg. near Carpenter's Shed	NAD
07A	Roofing Debris	Trans House	NAD
07B	Roofing Debris	Trans House	NAD
08A*	Ext. Window Glazing Compound	Collapsed Shed near Carpenter's Shed	2.96% Chrysotile
08B*	Ext. Window Glazing Compound	Collapsed Shed near Carpenter's Shed	1.34% Anthophylite
09A	Ext. Window Glazing Compound	Front Façade, Main Bldg.	NAD
09B	Ext. Window Glazing Compound	Front Façade, Main Bldg.	NAD
10A	Black Wrap on Copper Fins	Power Plant Building	NAD
10B	Black Wrap on Copper Fins	Power Plant Building	NAD
11A	Roofing Debris on Floor	Main Building, Room 17	NAD
11B	Roofing Debris on Floor	Main Building, Room 17	NAD
12A, 12B	Int. Window Glazing Compound	Boiler House	2% Chrysotile
13A	Electrical Wire Cloth Sheath	Main Building, Room 27	NAD
13B	Electrical Wire Cloth Sheath	Main Building, Room 20	NAD
14A, 14B	Ext. Window Glazing Compound	Main Building, Rm 52, 16 Pane Win. Sash	3% Chrysotile
15A	Ceramic Wall Tile Adhesive	Main Building, Room 18	NAD
15B	Ceramic Wall Tile Adhesive	Main Building, Room 18	TR
16A	Ceramic Floor Tile Setting Bed	Main Building, Room 18	NAD
16B	Ceramic Floor Tile Setting Bed	Main Building, Room 18	NAD
17A, 17B	Black Adhesive assoc. w/16	Main Building, Room 18	5% Chrysotile
18A	Ceramic Floor Tile Grout	Main Building, Room 18	TR
18B	Ceramic Floor Tile Grout	Main Building, Room 18	TR
19A	Cast in Place Ceiling Deck w/Wood Chips	Main Building, Room 63	NAD
19B	Cast in Place Ceiling Deck w/Wood Chips	Main Building, Room 63	NAD
20A, 20B, 20C	Cast in Place Ceiling Deck, High Deck	Main Building, Room 58	15% Chrysotile

Notes:

- NAD = No Asbestos Detected, TR = Trace
- See Limitations Section for areas deemed inaccessible or not included in Scope of Work.
- *Sample analyzed by TEM-NOB method.

Table 3.2
Lead Containing Paint Analytical Results

Field ID	Description	Location and Substrate	Result (% Weight)	Reporting Limit (RL)
Pb-1	Exterior Yellow Paint	Wood Window Casing	22	0.01
Pb-2	Exterior Yellow Paint	Concrete Window Casing	28	0.019
Pb-3	Interior Black Paint	Elevator Metal Door	3.3	0.022
Pb-4	Interior Gray Paint	Room B1 Wall	0.98	0.019
Pb-5	Interior White Paint	Room B8 Ceiling	0.008	0.026
Pb-6	Interior Purple Paint	Room 26 Wall	<RL	0.032
Pb-7	Interior Blue Paint	Boiler House Brick Wall	0.34	0.0087
Pb-8	Exterior Red Paint	Collapsed Bldg. Wood Siding	20	0.022
Pb-9	Interior Gray Paint	Boiler House Metal Boiler	0.41	0.017
Pb-10	Interior White Paint	Boiler House Brick Wall	<RL	0.019
Pb-11	Interior Green Paint	Room 53 Steel I-Beam	0.64	0.015
Pb-12	Interior Yellow Paint	Room 53 Brick Wall	0.23	0.028
Pb-13	Interior Green Paint	Room 17 Block Wall	0.2	0.016

Notes:

- Total Lead Analysis in Paint Using SW846-7420/3051

Table 3.3
Other Hazardous Materials

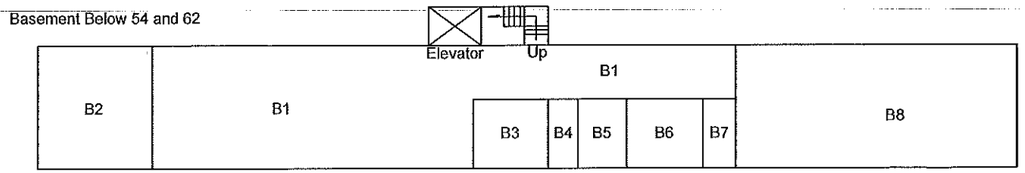
Suspect Hazardous Item	Estimated Quantity
8' Fluorescent tube lights	3400 units
4' Fluorescent tube lights	40 units
Ballasts	2000 units
Sodium lamps	50 units
Emergency lights	10 units
Mercury Thermostats and Switches	30 units
Hydraulic door close	10 units
Suspended space heater	80 units
Hoist motors	8 units
Air compressors	2 units
Fire extinguishers	5 units
Disassembled turbines and motors	6 units
Commercial refrigerant tanks	3 units
Misc. oils and lubricants	Not Quantified

FIGURES

NORTH

Lumber Storage
Salt Shed
Storage
Lumber Storage
Trans. House

Basement Below 54 and 62



Black River

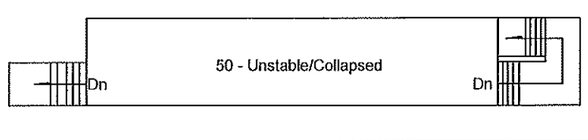
Power House
Pump House
Boiler House
Chip Shed
Storage
Garage
Storage Platform

Collapsed
Carpenter Shed
Collapsed

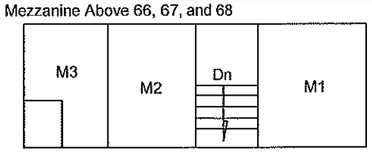
Bridge St.

Clinton St.

Mezzanine Above 51, 56, and 57



Mezzanine Above 66, 67, and 68



DRAFTSMAN:	DP
CKD. BY:	AL
APP'D BY:	AL
CKD. DATE:	07-08-13
PROJECT NUMBER:	63.44776.0001
DRAWING NUMBER:	FIG 1
DATE:	07-08-13
SCALE:	N.T.S.

Room Location Diagram
Former Jones & Lamson Facility

Clinton Street
Springfield, Vermont

Cardno ATC
171 Commerce Street, P.O Box 1488
Williston, VT 05495
Ph. (802)862-1880

FIGURE: 1

APPENDIX A

LABORATORY DATA

ProScience Analytical Services, Inc

Eric Kubic
Environmental Compliance Svcs Inc. HQ
588 Silver Street
Agawam, MA 01001

May 16, 2016

Dear Eric Kubic,

The enclosed analytical results have been obtained by using the EPA/600/R-93/116 method. The "Visual Estimate" quantitative method is generally used for determining the percentage of asbestos and other components of the sample. "The Point Counting" method may also be used upon client request or at the analyst discretion. The Point Count method is usually recommended when the sample contains less than 10% asbestos by Visual estimate. Asbestos content less than 1% is recorded on the report as TR (trace).

The Quality Control data related to the samples analyzed is available upon client's written request. ProScience Analytical Services Inc., assumes no responsibility for potential sample contamination that may have occurred during the sample collection process or erroneous data provided by the client.

The enclosed results may not be used under any circumstances as product endorsement by any US government agency including NIST/NVLAP.

All Laboratory records are retained for at least three years unless otherwise directed in writing by the client. The actual samples are retained for a period of two months and written request is necessary in order to be retained for a longer period of time. All analytical results and records are considered strictly confidential and will not be released under any circumstances to anyone except the actual client. The analytical results included in this report apply only to the items tested.

If you have any questions please contact the Laboratory Manager or the Laboratory Director.

Sincerely,

Patricia Weakley, Optical Asbestos Manager

Aimee Cormier, Laboratory Director

Enclosure: Version 2
LAB BATCH ID: B 100774 CLIENT PROJECT ID: N/A
Client Ref: Jones & Lambson - Springfield, VT
AIHA ID# 102754; CT ID# PH-0209; MA ID# AA000156; ME ID# LB-055; ME ID# LA-056; NVLAP Lab Code 200090-0; RI ID # AAL-093; VT ID# AL016876

ProScience Analytical Services, Inc.

Client Name: Environmental Compliance Svcs Inc. HQ
PO #: N/A
Client Project #: N/A
Client Reference: Jones & Lambson - Springfield, VT
Method: EPA/600/R-93/116

Batch: B100774
Date Sampled: 5/4/2016
Date Received: 5/10/2016
Date Analyzed: 5/13/2016
Date of Report: 5/16/2016

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
01A	Black	20	0	0	0	0	0	0	0	0	0	0	0	80

Description: Black Electrical Panel Cement Board
Location: Power Plant
Comments: Is asbestos present? Yes. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
01B	Black	20	0	0	0	0	0	0	0	0	0	0	0	80

Description: Black Electrical Panel Cement Board
Location: Power Plant
Comments: Is asbestos present? Yes. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
02A	White	75	0	0	0	0	0	0	0	0	0	25	0	0

Description: Lg. Diameter Rope on Ground
Location: Power Plant
Comments: Is asbestos present? Yes. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
02B	White	75	0	0	0	0	0	0	0	0	0	25	0	0

Description: Lg. Diameter Rope on Ground
Location: Power Plant
Comments: Is asbestos present? Yes. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
03A	Brown	10	0	0	0	0	0	0	0	0	0	0	0	90

Description: Dark Colored 9x9 Floor Tile
Location: Room 9
Comments: Is asbestos present? Yes. Analyzed: Yes

		Asbestos %						Non-Asbestos %						
Sample ID	Color	CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
03B	Brown	10	0	0	0	0	0	0	0	0	0	0	0	90

Description: Dark Colored 9x9 Floor Tile
Location: Room 9
Comments: Is asbestos present? Yes. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Environmental Compliance Svcs Inc. HQ
PO #: N/A
Client Project #: N/A
Client Reference: Jones & Lambson - Springfield, VT
Method: EPA/600/R-93/116

Batch: B100774
Date Sampled: 5/4/2016
Date Received: 5/10/2016
Date Analyzed: 5/13/2016
Date of Report: 5/16/2016

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
04A	Black	5	0	0	0	0	0	0	0	0	0	0	0	95

Description: Floor Tile Mastic assoc. w/03A
Location: Room 9
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
04B	Black	5	0	0	0	0	0	0	0	0	0	0	0	95

Description: Floor Tile Mastic assoc. w/03B
Location: Room 9
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
05A	Gray	3	0	0	0	0	0	0	0	0	0	0	0	97

Description: Floor Tile Debris on Floor
Location: Room 2
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
05B	Gray	3	0	0	0	0	0	0	0	0	0	0	0	97

Description: Floor Tile Debris on Floor
Location: Room 2
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
06A	Brown	0	0	0	0	0	0	0	0	95	0	0	0	5

Description: Paper under Wood Siding
Location: Collapsed Bldg. near Carpenter's Shed
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
06B	Brown	0	0	0	0	0	0	0	0	95	0	0	0	5

Description: Paper under Wood Siding
Location: Collapsed Bldg. near Carpenter's Shed
Comments: Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Environmental Compliance Svcs Inc. HQ
PO #: N/A
Client Project #: N/A
Client Reference: Jones & Lambson - Springfield, VT
Method: EPA/600/R-93/116

Batch: B100774
Date Sampled: 5/4/2016
Date Received: 5/10/2016
Date Analyzed: 5/13/2016
Date of Report: 5/16/2016

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
07A	Black	0	0	0	0	0	0	0	0	25	0	0	0	75

Description: Roofing Debris
Location: Trans House
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
07B	Black	0	0	0	0	0	0	0	0	25	0	0	0	75

Description: Roofing Debris
Location: Trans House
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
08A	Gray	TR	0	0	0	0	0	0	0	0	0	0	0	100

Description: Ext. Window Glazing Compound
Location: Collapsed Shed near Carpenter's Shed
Comments: Recommend TEM Analysis. Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
08B	Gray	TR	0	0	0	0	0	0	0	0	0	0	0	100

Description: Ext. Window Glazing Compound
Location: Collapsed Shed near Carpenter's Shed
Comments: Recommend TEM Analysis. Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
09A	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Ext. Window Glazing Compound
Location: Front Façade, Main Bldg.
Comments: Recommend TEM Analysis. Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
09B	Gray	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Ext. Window Glazing Compound
Location: Front Façade, Main Bldg.
Comments: Recommend TEM Analysis. Is asbestos present? No. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Environmental Compliance Svcs Inc. HQ
PO #: N/A
Client Project #: N/A
Client Reference: Jones & Lambson - Springfield, VT
Method: EPA/600/R-93/116

Batch: B100774
Date Sampled: 5/4/2016
Date Received: 5/10/2016
Date Analyzed: 5/13/2016
Date of Report: 5/16/2016

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
10A	Black	0	0	0	0	0	0	0	0	25	0	0	0	75

Description: Black Wrap on Copper Fins
Location: Power Plant
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
10B	Black	0	0	0	0	0	0	0	0	25	0	0	0	75

Description: Black Wrap on Copper Fins
Location: Power Plant
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
11A	Black	0	0	0	0	0	0	0	0	25	0	0	0	75

Description: Roofing Debris on Floor
Location: Room 17
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
11B	Black	0	0	0	0	0	0	0	0	25	0	0	0	75

Description: Roofing Debris on Floor
Location: Room 17
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
12A	Gray	2	0	0	0	0	0	0	0	0	0	0	0	98

Description: Int. Window Glazing Compound
Location: Boiler House
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
12B	Gray	2	0	0	0	0	0	0	0	0	0	0	0	98

Description: Int. Window Glazing Compound
Location: Boiler House
Comments: Is asbestos present? Yes. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Environmental Compliance Svcs Inc. HQ
PO #: N/A
Client Project #: N/A
Client Reference: Jones & Lambson - Springfield, VT
Method: EPA/600/R-93/116

Batch: B100774
Date Sampled: 5/4/2016
Date Received: 5/10/2016
Date Analyzed: 5/13/2016
Date of Report: 5/16/2016

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
13A	Gray	0	0	0	0	0	0	0	0	95	0	0	0	5

Description: Electrical Wire Cloth Sheath
Location: Room 27
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
13B	Gray	0	0	0	0	0	0	0	0	95	0	0	0	5

Description: Electrical Wire Cloth Sheath
Location: Room 20
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
14A	Gray	3	0	0	0	0	0	0	0	0	0	0	0	97

Description: Ext. Window Glazing Compound
Location: Rm 52, 16 Pane Win. Sash
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
14B	Gray	3	0	0	0	0	0	0	0	0	0	0	0	97

Description: Ext. Window Glazing Compound
Location: Rm 52, 16 Pane Win. Sash
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
15A	Multi	0	0	0	0	0	0	0	0	0	0	0	0	100

Description: Ceramic Wall Tile Adhesive
Location: Room 18
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
15B	Multi	TR	0	0	0	0	0	0	0	0	0	0	0	100

Description: Ceramic Wall Tile Adhesive
Location: Room 18
Comments: Is asbestos present? Yes. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Environmental Compliance Svcs Inc. HQ
PO #: N/A
Client Project #: N/A
Client Reference: Jones & Lambson - Springfield, VT
Method: EPA/600/R-93/116

Batch: B100774
Date Sampled: 5/4/2016
Date Received: 5/10/2016
Date Analyzed: 5/13/2016
Date of Report: 5/16/2016

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
16A	Tan	0	0	0	0	0	0	0	0	75	0	0	0	25

Description: Ceramic Floor Tile Setting Bed
Location: Room 18
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
16B	Tan	0	0	0	0	0	0	0	0	75	0	0	0	25

Description: Ceramic Floor Tile Setting Bed
Location: Room 18
Comments: Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
17A	Black	5	0	0	0	0	0	0	0	0	0	0	0	95

Description: Black Adhesive assoc. w/16A
Location: Room 18
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
17B	Black	5	0	0	0	0	0	0	0	0	0	0	0	95

Description: Black Adhesive assoc. w/16B
Location: Room 18
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
18A	Gray	TR	0	0	0	0	0	0	0	0	0	0	0	100

Description: Ceramic Floor Tile Grout
Location: Room 18
Comments: Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
18B	Gray	TR	0	0	0	0	0	0	0	0	0	0	0	100

Description: Ceramic Floor Tile Grout
Location: Room 18
Comments: Is asbestos present? Yes. Analyzed: Yes

ProScience Analytical Services, Inc.

Client Name: Environmental Compliance Svcs Inc. HQ
PO #: N/A
Client Project #: N/A
Client Reference: Jones & Lambson - Springfield, VT
Method: EPA/600/R-93/116

Batch: **B100774**
Date Sampled: 5/4/2016
Date Received: 5/10/2016
Date Analyzed: 5/13/2016
Date of Report: 5/16/2016

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
19A	Multi	0	0	0	0	0	0	0	0	5	0	0	0	95

Description: Cast in Place Ceiling Deck w/Wood Chips
Location: Room 63
Comments:
Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
19B	Multi	0	0	0	0	0	0	0	0	5	0	0	0	95

Description: Cast in Place Ceiling Deck w/Wood Chips
Location: Room 63
Comments:
Is asbestos present? No. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
20A	Gray	15	0	0	0	0	0	0	0	0	0	0	0	85

Description: Cast in Place Ceiling Deck, High Deck
Location: Room 58
Comments:
Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
20B	Gray	15	0	0	0	0	0	0	0	0	0	0	0	85

Description: Cast in Place Ceiling Deck, High Deck
Location: Room 58
Comments:
Is asbestos present? Yes. Analyzed: Yes

Sample ID	Color	Asbestos %						Non-Asbestos %						
		CHR	AMO	CRO	ACT	TRE	ANT	FBG	MNW	CEL	HAR	SYN	OTH	NON
20C	Gray	15	0	0	0	0	0	0	0	0	0	0	0	85

Description: Cast in Place Ceiling Deck, High Deck
Location: Room 58
Comments:
Is asbestos present? Yes. Analyzed: Yes

Asbestos Codes: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite
Non-Asbestos Codes: FBG = Fiberglass MNW = Mineral Wool CEL = Cellulose HAR = Hair SYN = Synthetic OTH = Other NON = Non-Fibrous Minerals

Note: To create a unique lab sample ID, use the Batch # and the Sample ID (example: [Batch #] - [Sample ID]).

* All results are in percentage.

Analyst: Patricia Weakley

ProScience Analytical Services, Inc.

PLM Asbestos Chain of Custody Record

LABORATORY/HEADQUARTERS
22 Cummings Park, Woburn, MA 01801
T:781-935-3212 F:781-932-4857

LABORATORY SERVICES
683 North Mountain Rd., Newington, CT 06111
T:860-953-1022 F:860-953-1030

☐ RUSH

Turn Around Time Requested

☐ Same day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

Client: Environmental Compliance Services, ECS
Address: 588 Silver Street, Agawam, MA. 01001
Phone / FAX Number: 413-789-3530 / 413-789-2776
Project Site/Project Job Number: Forest Lambson - Springfield VT.
Contact: Eric Kolc / Mike Delaney

Relinquished by/date: E Kolc 5/7/16
Received by/date: Kathy Astone 5-10-16 @ 41
Samples received: Analyzed 12:30pm
Faxed, E-mailed, Verbal by/date: H.W. KA 5-13
Stop on first positive: Yes No
Analyzed by/date: Patricia Wentz 5/13/16
QC by/date: Michelle Leathers 5-13-16

For Lab Use Batch # B100774

Lab ID	Field ID Sampled date	Description / Location	Visual: Color	Visual: Homogeneity	Visual: Texture	Visual: Friable	Optical Properties: Morphology	Optical Properties: Extinction	Optical Properties: Sign of Elongation	Optical Properties: Birefringence	Optical Properties: Pleochroism	RI: II	RI: ⊥	Asbestos Percentage (%): Chrysotile	Amosite	Circle Type: Crocidolite	Tremolite	Anthophyllite	Actinolite	Non Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non Fibrous
	5/4/16 01A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Black electrical Panel Cement Board Floor Rm Power Plant Amount	B	M	M	N	WP	+	LW	1553	1550	20														80
	01B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor Rm " " Amount	B	W	M	N	WP	+	LW	1553	1550	20														80
	02A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Lg. diameter Rope on ground Floor Rm " " Amount	W	W	F	Y	WP	+	LW	1553	1550	25											C			Ø
	02B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor Rm " " Amount	W	W	F	Y	WP	+	LW	1553	1550	25											C			Ø
	03A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: dark colored 9x9 Floor Rm Rm 9 Amount	B	R	N	H	WP	+	LW	1553	1550	10														90
	03B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor Rm " " Amount	B	R	N	H	WP	+	LW	1553	1550	10		15												90

Sample Description Key: Ft/Mastic=Floor tile and Mastic, Lm=Linloeum, Cm=Carpet mastic, Cvmm=Covemolding mastic, Pls=Plaster skim, Plb=Plaster base, Sh=Sheetrock, Jc=Joint Compound, Pi=Pipe insulation, Ct=Ceiling tile, Ck=Caulking, Glz=Glazing, Gdb=Glue daub

Comments:

ProScience Analytical Services, Inc.

PLM Asbestos Chain of Custody Record

LABORATORY/HEADQUARTERS
22 Cummings Park, Woburn, MA 01801
T:781-935-3212 F:781-932-4857

LABORATORY SERVICES
683 North Mountain Rd., Newington, CT 06111
T:860-953-1022 F:860-953-1030

☐ RUSH

Turn Around Time Requested

☐ Same day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

Client: Environmental Compliance Services, ECS
Address: 588 Silver Street, Agawam, MA. 01001
Phone / FAX Number: 413-789-3530 / 413-789-2776
Project Site/Project Job Number: Jones & Lambson
Contact:

Relinquished by/date: 5/7/16
Received by/date:
Samples received: _____ Analyzed _____
Faxed, E-mailed, Verbal by/date:
Stop on first positive: Yes _____ No _____
QC by/date: MD 5/13/16

Analyzed by/date: RD 5/13/16

For Lab Use Batch # B100774

Lab ID	Field ID Sampled date	Description / Location	Visual: Color	Visual: Homogeneity	Visual: Texture	Visual: Friable	Optical Properties: Morphology	Optical Properties: Extinction	Optical Properties: Sign of Elongation	Optical Properties: Birefringence	Optical Properties: Pleochroism	RI: II	RI: ⊥	Asbestos Percentage (%): Chrysotile	Asbestos Percentage (%): Amosite	Asbestos Percentage (%): Circle Type: Crocidolite	Asbestos Percentage (%): Circle Type: Tremolite	Asbestos Percentage (%): Circle Type: Anthophyllite	Asbestos Percentage (%): Circle Type: Actinolite	Non Asbestos Percentage (%): Fiberglass	Non Asbestos Percentage (%): Mineral Wool	Non Asbestos Percentage (%): Cellulose	Non Asbestos Percentage (%): Hair	Non Asbestos Percentage (%): Synthetic	Non Asbestos Percentage (%): Other	Non Asbestos Percentage (%): Non Fibrous
	04A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Assoc w/ 03A Floor_____Rm_____Amount_____	BK	W	M	N	WP	P	+	L	W	1.553	1.550	5												95
	04B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Assoc w/ 03B Floor_____Rm_____Amount_____	BK	W	M	TN	WP	P	+	L	W	1.553	1.550	5												95
	05A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: debris on floor Floor_____Rm Rm 2_____Amount_____	GY	N	H	N	WP	P	+	L	W	1.553	1.550	3												97
	05B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor_____Rm Rm 2_____Amount_____	GY	W	H	N	WP	P	+	L	W	1.553	1.550	3												97
	06A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Paper under wood siding on College Bldg near carpenters shed Floor_____Rm_____Amount_____	BR	W	F	Y																4/5				5
	06B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor_____Rm_____Amount_____	BR	W	F	Y																4/5				5

Sample Description Key: Ft/Mastic=Floor tile and Mastic, Lm=Linloeum, Cm=Carpet mastic, Cvmm=Covemolding mastic, Pls=Plaster skim, Plb=Plaster base, Sh=Sheetrock, Jc=Joint Compound, Pi=Pipe insulation, Ct=Ceiling tile, Ck=Caulking, Glz=Glazing, Gdb=Glue daub

Comments:

ProScience Analytical Services, Inc.

PLM Asbestos Chain of Custody Record

LABORATORY/HEADQUARTERS
22 Cummings Park, Woburn, MA 01801
T:781-935-3212 F:781-932-4857

LABORATORY SERVICES
683 North Mountain Rd., Newington, CT 06111
T:860-953-1022 F:860-953-1030

☐ RUSH

Turn Around Time Requested

☐ Same day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

Client: Environmental Compliance Services, ECS
Address: 588 Silver Street, Agawam, MA. 01001
Phone / FAX Number: 413-789-3530 / 413-789-2776
Project Site/Project Job Number: Jones & Lawson
Contact:

Relinquished by/date: 5/7/16
Received by/date:
Samples received: Analyzed
Faxed, E-mailed, Verbal by/date:
Stop on first positive: Yes No
QC by/date: MLO 5-13-16

Analyzed by/date: RJ 5/13/16

For Lab Use Batch # B100774

Lab ID	Field ID Sampled date	Description / Location	Visual: Color	Visual: Homogeneity	Visual: Texture	Visual: Friable	Optical Properties: Morphology	Optical Properties: Extinction	Optical Properties: Sign of Elongation	Optical Properties: Birefringence	Optical Properties: Pleochroism	RI: II	RI: ⊥	Asbestos Percentage (%): Chrysotile	Asbestos Percentage (%): Amosite	Asbestos Percentage (%): Crocidolite	Asbestos Percentage (%): Tremolite	Asbestos Percentage (%): Anthophylite	Asbestos Percentage (%): Actinolite	Non Asbestos Percentage (%): Fiberglass	Non Asbestos Percentage (%): Mineral Wool	Non Asbestos Percentage (%): Cellulose	Non Asbestos Percentage (%): Hair	Non Asbestos Percentage (%): Synthetic	Non Asbestos Percentage (%): Other	Non Asbestos Percentage (%): Non Fibrous
	07A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Roofing debris - Trans House Floor Rm Amount	B	K	M	N																1-HB					
					T																	25				75
	07B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor Rm Amount	B	K	M	N																1-HB					
					T																	25				75
	08A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: ext wall - Collapsed shed near carpenters shed Floor Rm Amount	G	Y	H	N	WP	+	LN	I553	I550	TR														100 *
	08B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor Rm Amount	G	Y	H	N	WP	+	LN	I553	I550	TR														100 *
	09A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: ext wall - front ~~door~~ facade Floor Rm Main Bldg Amount	G	Y	H	N																				100 *
	09B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor Rm " " Amount	G	Y	H	N																				100 *

Sample Description Key: Ft/Mastic=Floor tile and Mastic, Lm=Linloeum, Cm=Carpet mastic, Cvmm=Covemolding mastic, Pls=Plaster skim, Plb=Plaster base, Sh=Sheetrock, Jc=Joint Compound, Pi=Pipe insulation, Ct=Ceiling tile, Ck=Caulking, Glz=Glazing, Gdb=Glue daub * TEM Recommended.

Comments:

ProScience Analytical Services, Inc.

PLM Asbestos Chain of Custody Record

LABORATORY/HEADQUARTERS
22 Cummings Park, Woburn, MA 01801
T:781-935-3212 F:781-932-4857

LABORATORY SERVICES
683 North Mountain Rd., Newington, CT 06111
T:860-953-1022 F:860-953-1030

☐ RUSH

Turn Around Time Requested

☐ Same day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

Client: Environmental Compliance Services, ECS

Address: 588 Silver Street, Agawam, MA. 01001

Phone / FAX Number: 413-789-3530 / 413-789-2776

Project Site/Project Job Number: Jones + Lambson

Contact:

Relinquished by/date: 5/7/16

Received by/date:

Samples received: Analyzed

Faxed, E-mailed, Verbal by/date:

Stop on first positive: Yes No

QC by/date: MMD 5-13

For Lab Use Batch # B100774 Analyzed by/date: RD 5/13/16

Lab ID	Field ID Sampled date	Description / Location	Visual: Color	Visual: Homogeneity	Visual: Texture	Visual: Friable	Optical Properties: Morphology	Optical Properties: Extinction	Optical Properties: Sign of Elongation	Optical Properties: Birefringence	Optical Properties: Pleochroism	RI: II	RI: ⊥	Asbestos Percentage (%): Chrysotile	Asbestos Percentage (%): Amosite	Asbestos Percentage (%): Circle Type: Crocidolite	Asbestos Percentage (%): Circle Type: Tremolite	Asbestos Percentage (%): Circle Type: Anthophylite	Asbestos Percentage (%): Circle Type: Actinolite	Non Asbestos Percentage (%): Fiberglass	Non Asbestos Percentage (%): Mineral Wool	Non Asbestos Percentage (%): Cellulose	Non Asbestos Percentage (%): Hair	Non Asbestos Percentage (%): Synthetic	Non Asbestos Percentage (%): Other	Non Asbestos Percentage (%): Non Fibrous
	10A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Black wrap on copper pipe. Floor Rm Power Plant Amount	B	N	M	N																HS					
			K		T																	25					75
	10B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " " " Floor Rm " " Amount	B	N	M	N																HS					
			K		T																	25					75
	11A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Roofing debris on floor Floor Rm Rm 17 Amount	B	N	M	N																HS					
			K		T																	25					75
	11B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " " " Floor Rm Rm 17 Amount	B	N	M	N																HS					
			K		T																	25					75
	12A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Int wall Floor Rm Boiler House Amount	G	N	H	N	WP	+	L	N		1.553	1.550	2													98
			Y		W																					
	12B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " " " Floor Rm " " Amount	G	N	H	N	WP	+	L	N		1.553	1.550	2													98
			Y		W																					

Sample Description Key: Ft/Mastic=Floor tile and Mastic, Lm=Linloeum, Cm=Carpet mastic, Cvmm=Covemolding mastic, Pls=Plaster skim, Plb=Plaster base, Sh=Sheetrock, Jc=Joint Compound, Pi=Pipe insulation, Ct=Ceiling tile, Ck=Caulking, Glz=Glazing, Gdb=Glue daub

Comments:

ProScience Analytical Services, Inc.

PLM Asbestos Chain of Custody Record

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683 North Mountain Rd., Newington, CT 06111
T:860-953-1022 F:860-953-1030

☐ RUSH

Turn Around Time Requested

☐ Same day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

Client: Environmental Compliance Services, ECS
Address: 588 Silver Street, Agawam, MA. 01001
Phone / FAX Number: 413-789-3530 / 413-789-2776
Project Site/Project Job Number: Jones & Lambson
Contact:

Relinquished by/date: E Thul 5/7/16
Received by/date:
Samples received: _____ Analyzed _____
Faxed, E-mailed, Verbal by/date:
Stop on first positive: Yes _____ No _____
QC by/date: MW 5/13/16

Analyzed by/date: RD 5/13/16

For Lab Use Batch # B100774

Lab ID	Field ID Sampled date	Description / Location	Visual: Color	Visual: Homogeneity	Visual: Texture	Visual: Friable	Optical Properties: Morphology	Optical Properties: Extinction	Optical Properties: Sign of Elongation	Optical Properties: Birefringence	Optical Properties: Pleochroism	RI: II	RI: ⊥	Asbestos Percentage (%): Chrysotile	Asbestos Percentage (%): Amosite	Asbestos Percentage (%): Crocidolite	Asbestos Percentage (%): Tremolite	Asbestos Percentage (%): Anthophyllite	Asbestos Percentage (%): Actinolite	Non Asbestos Percentage (%): Fiberglass	Non Asbestos Percentage (%): Mineral Wool	Non Asbestos Percentage (%): Cellulose	Non Asbestos Percentage (%): Hair	Non Asbestos Percentage (%): Synthetic	Non Asbestos Percentage (%): Other	Non Asbestos Percentage (%): Non Fibrous
	13A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: electrical wire cloth sheath Floor ____ Rm Rm 27 Amount ____	GY	N	F	Y																15				5
	13B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm Rm 20 Amount ____	GY	N	F	Y																15				5
	14A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: 16 Pane w/in Sash - ext WOC Floor ____ Rm Rm 52 Amount ____	GY	N	H	N	W	P	+	L	N	1553	1550	3												97
	14B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm Rm 52 Amount ____	GY	N	H	N	W	P	+	L	N	1553	1550	3												97
	15A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: ceramic wall tile Ash- Floor ____ Rm Rm 18 Amount ____	MC	W	R	N																				100
	15B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm Rm 18 Amount ____	MC	W	R	N	W	P	+	L	N	1553	1550	TR												100

Sample Description Key: Ft/Mastic=Floor tile and Mastic, Lm=Linloeum, Cm=Carpet mastic, Cvmm=Covemolding mastic, Pls=Plaster skim, Plb=Plaster base, Sh=Sheetrock, Jc=Joint Compound, Pi=Pipe insulation, Ct=Ceiling tile, Ck=Caulking, Glz=Glazing, Gdb=Glue daub

Comments:

ProScience Analytical Services, Inc.

PLM Asbestos Chain of Custody Record

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T:860-953-1022 F:860-953-1030

☐ RUSH

Turn Around Time Requested

☐ Same day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

Client: Environmental Compliance Services, ECS
Address: 588 Silver Street, Agawam, MA. 01001
Phone / FAX Number 413-789-3530 / 413-789-2776
Project Site/Project Job Number: Jones & Lawson
Contact:

Relinquished by/date: 5/7/16
Received by/date:
Samples received: Analyzed
Faxed, E-mailed, Verbal by/date:
Stop on first positive: Yes No

For Lab Use Batch # B100774 Analyzed by/date: 5/13/16 QC by/date. 5.13.16

Lab ID	Field ID Sampled date	Description / Location	Visual: Color	Visual: Homogeneity	Visual: Texture	Visual: Friable	Optical Properties: Morphology	Optical Properties: Extinction	Optical Properties: Sign of Elongation	Optical Properties: Birefringence	Optical Properties: Pleochroism	RI: II	RI: ⊥	Asbestos Percentage (%): Chrysotile	Asbestos Percentage (%): Amosite	Asbestos Percentage (%): Circle Type: Crocidolite	Asbestos Percentage (%): Circle Type: Tremolite	Asbestos Percentage (%): Circle Type: Anthophyllite	Asbestos Percentage (%): Circle Type: Actinolite	Non Asbestos Percentage (%): Fiberglass	Non Asbestos Percentage (%): Mineral Wool	Non Asbestos Percentage (%): Cellulose	Non Asbestos Percentage (%): Hair	Non Asbestos Percentage (%): Synthetic	Non Asbestos Percentage (%): Other	Non Asbestos Percentage (%): Non Fibrous
	16A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Ceramic floor tile Setting Bed Floor Rm Rm 18	T	N	M/T	N																HB					25
	16B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor Rm " "	T	N	M/T	N																HB					25
	17A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Black Ash assoc w/ 16A Floor Rm " "	B	K	N	T	WP	+	L	N		1553	1559	5													95
	17B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Black Ash assoc w/ 16B Floor Rm " "	B	K	N	T	WP	+	L	N		1553	1559	5													95
	18A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Ceramic floor tile grout Floor Rm " "	G/Y	N	H	N	WP	+	L	N		1553	1559	TR													100
	18B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor Rm " "	G/Y	N	H	N	WP	+	L	N		1553	1559	TR													100

Sample Description Key: Ft/Mastic=Floor tile and Mastic, Lm=Linloeum, Cm=Carpet mastic, Cvmm=Covemolding mastic, Pls=Plaster skim, Plb=Plaster base, Sh=Sheetrock, Jc=Joint Compound, Pi=Pipe insulation, Ct=Ceiling tile, Ck=Caulking, Glz=Glazing, Gdb=Glue daub

ProScience Analytical Services, Inc.

PLM Asbestos Chain of Custody Record

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683 North Mountain Rd., Newington, CT 06111
T:860-953-1022 F:860-953-1030

☐ RUSH

Turn Around Time Requested

☐ Same day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

Client: Environmental Compliance Services, ECS
Address: 588 Silver Street, Agawam, MA. 01001
Phone / FAX Number 413-789-3530 / 413-789-2776
Project Site/Project Job Number: Jones & Lambson
Contact:

Relinquished by/date: E Thiel 5/7/16
Received by/date:
Samples received: _____ Analyzed _____
Faxed, E-mailed, Verbal by/date:
Stop on first positive: Yes _____ No _____

For Lab Use Batch # B100774 Analyzed by/date: RD 5/13/16 QC by/date. MW 5.13.16

Lab ID	Field ID Sampled date	Description / Location	Visual: Color	Visual: Homogeneity	Visual: Texture	Visual: Friable	Optical Properties: Morphology	Optical Properties: Extinction	Optical Properties: Sign of Elongation	Optical Properties: Birefringence	Optical Properties: Pleochroism	RI: ∥	RI: ⊥	Asbestos Percentage (%): Chrysotile	Asbestos Percentage (%): Amosite	Asbestos Percentage (%): Crocidolite	Asbestos Percentage (%): Tremolite	Asbestos Percentage (%): Anthophylite	Asbestos Percentage (%): Actinolite	Non Asbestos Percentage (%): Fiberglass	Non Asbestos Percentage (%): Mineral Wool	Non Asbestos Percentage (%): Cellulose	Non Asbestos Percentage (%): Hair	Non Asbestos Percentage (%): Synthetic	Non Asbestos Percentage (%): Other	Non Asbestos Percentage (%): Non Fibrous
	19A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Cast in Place ceiling deck w/ wood chips. Floor ____ Rm RM 63	M	C	M	Y															HB						
	19A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm RM 63	M	C	M	Y															HB		5				95
	19B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm RM 63	M	C	M	Y															HB		5				95
	20A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Cast in Place Ceiling Deck, High Deck Floor ____ Rm RM 58	G	Y	M	Y	WP	+	L	W	I	553	550	15													85
	20B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm " "	G	Y	M	Y	WP	+	L	W	I	553	550	15													85
	20C	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm " "	G	Y	M	Y	WP	+	L	W	I	553	550	15													85
		Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Floor ____ Rm																									

Sample Description Key: Ft/Mastic=Floor tile and Mastic, Lm=Linloeum, Cm=Carpet mastic, Cvmm=Covemolding mastic, Pls=Plaster skim, Plb=Plaster base, Sh=Sheetrock, Jc=Joint Compound, Pi=Pipe insulation, Ct=Ceiling tile, Ck=Caulking, Glz=Glazing, Gdb=Glue daub

ProScience Analytical Services, Inc

May 18, 2016

Eric Kubic
Environmental Compliance Svcs Inc. HQ
588 Silver Street
Agawam, MA 01001

Dear Eric Kubic,

Results of samples you described and submitted to ProScience Analytical Services, Inc. are shown on the enclosed data sheets. The analytical results in this report apply to the items tested only.
The listed samples were prepared and analyzed in compliance with the New York State Transmission Electron Microscope Method for Identifying and Quantitating Asbestos in Non-Friable Organically Bound Bulk Samples. This method is used for the determination of weight percent of asbestos in non-friable materials.
The sample is processed to remove non-asbestos interference. The remaining residue is examined using a Philips 300 transmission electron microscope equipped with selected area electron diffraction (SAED) and an Evex energy dispersive x-ray analyzer.

The following are reported: identification numbers, type of material, color or the sample, initial weight of the sample, weight percent of organic material lost by ashing, weight percent of carbonates lost by acid dissolution, weight percent of non-fibrous/non asbestos inorganic material, total weight percent of asbestos in the original sample, and the type(s) of asbestos, if any.
The EPA recognizes asbestos as the following: actinolite, amosite, anthophyllite, chrysotile, crocidolite, and tremolite. To be considered asbestos containing, a material must be determined to contain greater than one percent asbestos. Samples are retained for a period of 2 months.

The quality control data related to the samples analyzed are available for review upon the written request of the client. ProScience Analytical Services, Inc. and its personnel assume no responsibility for potential sample contamination, misuse, misinformation, or misrepresentation by the client. The enclosed results may not be used under any circumstances as product endorsement by any US government agency including NIST/NVLAP.

Please contact me if you have any questions regarding this report or related information.

Sincerely,

Mark Derosier, Senior Analyst
Aimee Cormier, Laboratory Manager

Enclosure:

BATCH NUMBER : NT 15808 CLIENT PROJECT ID: N/A
Client Ref: Jones & Lambson - Springfield, VT
NVLAP Lab Code 200090-0; CT ID# PH-0209; MA ID# AA000156; ME ID# LB-055; ME ID# LA-056; AIHA ID# 102754; VT ID# AL016876; PH ID# 218(TEM,PLM); RI ID# 186.

ProScience Analytical Services, Inc.

22 Cummings Park, Woburn, Massachusetts 01801
781-935-3212 ~ Fax: 781-932-4857 ~ E-Mail general@proscience.net

Laboratory Report

Client Project #: N/A
Client Reference: Jones & Lambson - Springfield, VT
PO #: N/A
Client #: 110
Client Name: Environmental Compliance Svcs Inc. HQ

Batch: NT 15808
Method: NOB
Date Received: 5/16/2016
Date Analyzed: 5/18/2016
Date of Report: 5/18/2016

LAB ID	Field ID	Description:	Color	Initial Weight	% Asbestos Types						% Other	%	%	Total %	Analyzed /	Preped /
					CHR	AMO	ACT	CRO	ANT	TRE	Non-asb.	Organic	Carb.	Asbestos	Charged	Charged
NT120356	08A	Exterior Window Glazing Compound, Collapsed Shed Near Carpenters Shed		.2997	2.96	.00	.00	.00	.00	.00	4.44	13.25	79.35	**2.96**	Yes	No
NT120357	08B	Exterior Window Glazing Compound, Collapsed Shed Near Carpenters Shed		.4837	.04	.00	.00	.00	1.30	.00	7.35	6.84	84.47	**1.34**	Yes	No

Comments:

Key: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite TR = Trace = < 1% ND = None Detected

Aimee Cormier, Analyst

ProScience Analytical Services, Inc.

PLM Asbestos Chain of Custody Record

LABORATORY/HEADQUARTERS
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☐ RUSH — NT 15808 — Page 1 Of 7

Turn Around Time Requested

☐ Same day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

Client: Environmental Compliance Services, ECS

Address: 588 Silver Street, Agawam, MA. 01001

Phone / FAX Number: 413-789-3530 / 413-789-2776

Project Site/Project Job Number: Jones + Lambson - Springfield VT.

Contact: Eric Kibic / Mike Delaney

Relinquished by/date: E Thil 5/7/16

Received by/date: Kathy Astone 5-7-16 @ 4:10

Samples received: Analyzed 12:30 PM

Faxed, E-mailed, Verbal by/date: HW, KA 5-13

Stop on first positive: Yes / No

Analyzed by/date: Patricia Wentz 5/13/16

QC by/date: Michelle Weakley 5-13-16

For Lab Use Batch # B100774

Lab ID	Field ID Sampled date	Description / Location	Visual: Color	Visual: Homogeneity	Visual: Texture	Visual: Friable	Optical Properties: Morphology	Optical Properties: Extinction	Optical Properties: Sign of Elongation	Optical Properties: Birefringence	Optical Properties: Pleochroism	RI: ∥	RI: ⊥	Asbestos Percentage (%): Chrysotile	Asbestos Percentage (%): Amosite	Asbestos Percentage (%): Crocidolite	Asbestos Percentage (%): Tremolite	Asbestos Percentage (%): Anthophyllite	Asbestos Percentage (%): Actinolite	Non Asbestos Percentage (%): Fiberglass	Non Asbestos Percentage (%): Mineral Wool	Non Asbestos Percentage (%): Cellulose	Non Asbestos Percentage (%): Hair	Non Asbestos Percentage (%): Synthetic	Non Asbestos Percentage (%): Other	Non Asbestos Percentage (%): Non Fibrous
	5/4/16 01A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Black electrical Panel Cement Board Floor ____ Rm Power Plant Amount ____	B K	W	M T	N	W	P	+	L	N	1.553	1.550	20												80
	01B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm " " Amount ____	B K	W	M T	N	W	P	+	L	N	1.553	1.550	20												80
	02A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Lg. diameter Rope on ground Floor ____ Rm " " Amount ____	W H	W	F	Y	W	P	+	L	N	1.553	1.550	75									C	25		0
	02B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm " " Amount ____	W H	W	F	Y	W	P	+	L	N	1.553	1.550	75									C	25		0
	03A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: dark colored 9x9 Floor ____ Rm Rm 9 Amount ____	B R	W	H	N	W	P	+	L	N	1.553	1.550	10												90
	03B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm " " Amount ____	B R	W	H	N	W	P	+	L	N	1.553	1.550	10	15											90

Sample Description Key: Ft/Mastic=Floor tile and Mastic, Lm=Linloeum, Cm=Carpet mastic, Cvmm=Covemolding mastic, Pls=Plaster skim, Plb=Plaster base, Sheetrock, Jc=Joint Compound, Pi=Pipe insulation, Ct=Ceiling tile, Ck=Caulking, Glz=Glazing, Gdb=Glue daub

ProScience Analytical Services, Inc.

PLM Asbestos Chain of Custody Record

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T:860-953-1022 F:860-953-1030

Turn Around Time Requested:

☐ Same day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

Relinquished by/date: E. Kl 5/7/16

Received by/date:

Samples received: _____ Analyzed _____

Faxed, E-mailed, Verbal by/date:

Stop on first positive: Yes _____ No _____

QC by/date: MLO 5-13-16

Client: Environmental Compliance Services, ECS

Address: 588 Silver Street, Agawam, MA. 01001

Phone / FAX Number: 413-789-3530 / 413-789-2776

Project Site/Project Job Number: Towns of Lanbsom

Contact: _____ Analyzed by/date: RW 5/13/16

For Lab Use Batch # B100774

Lab ID	Field ID Sampled date	Description / Location	Visual: Color	Visual: Homogeneity	Visual: Texture	Visual: Friable	Optical Properties: Morphology	Optical Properties: Extinction	Optical Properties: Sign of Elongation	Optical Properties: Birefringence	Optical Properties: Pleochroism	RI: II	RI: ⊥	Asbestos Percentage (%): Chrysotile	Asbestos Percentage (%): Amosite	Asbestos Percentage (%): Crocidolite	Asbestos Percentage (%): Tremolite	Asbestos Percentage (%): Anthophyllite	Asbestos Percentage (%): Actinolite	Non Asbestos Percentage (%): Fiberglass	Non Asbestos Percentage (%): Mineral Wool	Non Asbestos Percentage (%): Cellulose	Non Asbestos Percentage (%): Hair	Non Asbestos Percentage (%): Synthetic	Non Asbestos Percentage (%): Other	Non Fibrous
	07A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: Roofing debris- Trans House Floor____ Rm____ Amount____	B	N	M	TN																1-HB					95
	07B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " Floor____ Rm____ Amount____	B	N	M	TN																1-HB					95
	08A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: ext WGL. Collapsed shed near carpenters shed Floor____ Rm____ Amount____	G	TN	H	N	WP	+	LN	SS	SS	C	TR													100 *
	08B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " Floor____ Rm____ Amount____	G	TN	H	N	WP	+	LN	SS	SS	C	TR													100 *
	09A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: ext well front facade Floor____ Rm Main Bldg. Amount____	G	TN	H	N																				100 *
	09B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " Floor____ Rm____ Amount____	G	TN	H	N																				100 *

Sample Description Key: Ft/Mastic=Floor tile and Mastic, Lm=Linloeum, Cm=Carpet mastic, Cvmm=Covemolding mastic, Pls=Plaster skim, Plb=Plaster base, Sheetrock, Jc=Joint Compound, Pi=Pipe insulation, Ct=Ceiling tile, Ck=Caulking, Glz=Glazing, Gdb=Glue daub

* TEM Recommended.

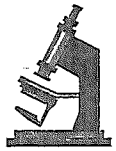
Comments:

roScience Analytical Services, Inc.

_M Asbestos Chain of Custody Record

BORATORY/HEADQUARTERS
Cummings Park, Woburn, MA 01801
31-935-3212 F:781-932-4857

LABORATORY SERVICES
683 North Mountain Rd., Newington, CT 06111
T:860-953-1022 F:860-953-1030



☐ RUSH

Page 5 Of 6

Turn Around Time Requested

☐ Same day ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 4-5 Days

ent: Environmental Compliance Services, ECS

dress: 588 Silver Street, Agawam, MA. 01001

one / FAX Number: 413-789-3530 / 413-789-2776

oject Site/Project Job Number: Jones & Lambson

ntact:

Relinquished by/date: E Thul 5/7/16

Received by/date:

Samples received: _____ Analyzed _____

Faxed, E-mailed, Verbal by/date:

Stop on first positive: Yes _____ No _____

Analyzed by/date: RD 5/13/16

QC by/date: MW 5/13/16

Lab Use Batch # B100774

Lab ID	Field ID Sampled date	Description / Location	Visual: Color	Visual: Homogeneity	Visual: Texture	Visual: Friable	Optical Properties: Morphology	Optical Properties: Extinction	Optical Properties: Sign of Elongation	Optical Properties: Birefringence	Optical Properties: Pleochroism	RI: II	RI: ⊥	Asbestos Percentage (%): Chrysotile	Asbestos Percentage (%): Amosite	Asbestos Percentage (%): Crocidolite (Circle Type)	Asbestos Percentage (%): Tremolite (Circle Type)	Asbestos Percentage (%): Anthophyllite (Circle Type)	Asbestos Percentage (%): Actinolite (Circle Type)	Non Asbestos Percentage (%): Fiberglass	Non Asbestos Percentage (%): Mineral Wool	Non Asbestos Percentage (%): Cellulose	Non Asbestos Percentage (%): Hair	Non Asbestos Percentage (%): Synthetic	Non Asbestos Percentage (%): Other	Non Asbestos Percentage (%): Non Fibrous
	13A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: electrical wire cloth sheath Floor ____ Rm Rm 27 Amount ____	G	Y	N	F																HB					
																						95				5
	13B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm Rm 20 Amount ____	G	Y	N	F																HB					
																						95				5
	14A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: 16 Tone w/n Sash - ext wall Floor ____ Rm Rm 52 Amount ____	G	Y	N	H	W	P	+	L	N	1553	1550	3													97
	14B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm Rm 52 Amount ____	G	Y	N	H	W	P	+	L	N	1553	1550	3													97
	15A	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: ceramic wall tile Ash- Floor ____ Rm Rm 18 Amount ____	M	C	N	R	N																				100
	15B	Ft/Mastic Lm Cm Cvmm Pls/Plb Sh/Jc Pi Ct Ck Glz Gdb Description: " " " Floor ____ Rm Rm 18 Amount ____	M	C	N	R	N	W	P	+	L	N	1553	1550	TR												100

mple Description Key: Ft/Mastic=Floor tile and Mastic, Lm=Linloeum, Cm=Carpet mastic, Cvmm=Covemolding mastic, Pls=Plaster skim, Plb=Plaster base, =Sheetrock, Jc=Joint Compound, Pi=Pipe insulation, Ct=Ceiling tile, Ck=Caulking, Glz=Glazing, Gdb=Glue daub

ments:

 NT15808

PASi

ProScience Analytical <general@proscience.net>

B100774 Report Jones & Lambson, Spfld. - B100774 Table

Michael Delaney <mdelaney@ecsconsult.com> Mon, May 16, 2016 at 2:55 PM
To: ProScience Analytical <general@proscience.net>
Cc: Eric Kubic <ekubic@ecsconsult.com>, Chris Godfrey <cgodfrey@ecsconsult.com>

Please perform TEM analysis on window glazing samples 08A and 08B and ceramic wall tile adhesive sample 15B, 2 day TA.

Thanks.

Mike

ecs

Michael Delaney
Senior Project Manager
Environmental Compliance Services, Inc.
10 State Street
Woburn, MA 01801
Tel: 781-246-8897 Ext. 257
Cell: 978-809-2414
mdelaney@ecsconsult.com
www.ecsconsult.com

[Quoted text hidden]

ProScience Analytical Services, Inc.
22 Cummings Park, Woburn, MA 01801

Telephone: 781-935-3212
Facsimile: 781-932-4857
Email: chemistry@proscience.net

Laboratory Report

Contact: Chris Godfrey
Client: ECS, Incorporated
Address: 588 Silver Street
Agawam, MA 01001

Batch #: C 288256
Date received: 5/10/2016
Date analyzed: 5/10/2016
Date of report: 5/10/2016

Project #
P.O.# N/A
Project Site: Jones & Lambson
Springfield, VT

AIHA-LAP, LLC Lab ID 102754

Lead Analysis In Paint Using SOP Based on SW846-7420/3051
Results in weight percent on an "as received" weight basis

Lab ID	Client ID	Sample date	Description	Result	Reporting Limit	Comments
C 549808	Pb-1	5/4/16	Exterior Yellow Paint on Wood Window Casing	22	0.010	
C 549809	Pb-2	5/4/16	Exterior Yellow Concrete Window Casing Paint	28	0.019	
C 549810	Pb-3	5/4/16	Black Metal Elevator Door Paint	3.3	0.022	
C 549811	Pb-4	5/4/16	Room B1- Gray Concrete Wall Paint	0.98	0.019	
C 549812	Pb-5	5/4/16	Room B8- White Concrete Ceiling Paint	0.080	0.026	
C 549813	Pb-6	5/4/16	Room 26- Purple Block Wall Paint	<RL	0.032	
C 549814	Pb-7	5/4/16	Blue Brick Wall Paint Boiler House	0.34	0.0087	
C 549815	Pb-8	5/4/16	Red Woodsiding Paint- Collapsed Bldg.	20	0.022	
C 549816	Pb-9	5/4/16	Gray Paint on Metal Boiler- Boiler House	0.41	0.017	
C 549817	Pb-10	5/4/16	White Brick Wall Paint- Boiler House	<RL	0.019	

Simona Peavey, Tech. Manager Chemistry
Aimee Cormier, Lab Director

Unless otherwise indicated, all samples were received in acceptable condition.
All result apply only to the samples as received and are accurate to no more than two significant figures.
Unless otherwise indicated, all the quality control criteria for the method above have been met.
RL-Reporting Limit(%by weight) Note on units: mg/Kg is the same as ppm by weight.

ProScience Analytical Services, Inc.
22 Cummings Park, Woburn, MA 01801

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Facsimile: 781-932-4857
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P.O.# N/A
Project Site: Jones & Lambson
Springfield, VT

AIHA-LAP, LLC Lab ID 102754

Lead Analysis In Paint Using SOP Based on SW846-7420/3051
Results in weight percent on an "as received" weight basis

Lab ID	Client ID	Sample date	Description	Result	Reporting Limit	Comments
C 549818	Pb-11	5/4/16	Green Steel I- Beam Paint- Room 53	0.64	0.015	
C 549819	Pb-12	5/4/16	Yellow Brick Wall Paint- Room 53	0.23	0.028	
C 549820	Pb-13	5/4/16	Green Block Wall Paint- Room 17	0.20	0.016	

Simona Peavey, Tech. Manager Chemistry
Aimee Cormier, Lab Director

Unless otherwise indicated, all samples were received in acceptable condition.
All result apply only to the samples as received and are accurate to no more than two significant figures.
Unless otherwise indicated, all the quality control criteria for the method above have been met.
RL-Reporting Limit(%by weight) Note on units: mg/Kg is the same as ppm by weight.

ProScience Analytical Services, Inc.

Chemistry Chain of Custody Record

LABORATORY/HEADQUARTERS
22 Cummings Park, Woburn, MA 01801
T:781-935-3212 F:781-932-4857

www.proscience.net
general@proscience.net

☐ Rush/<6 Hours — Turn Around Time Requested

Same Day	Next Day	2 Day	3 Day	5 Days
☐	☐	☐	☒	☐

Client: Environmental Compliance Services, Inc.

Address — Street: 588 Silver Street

Town: Agawam, State/Zip: MA 01001

Project Site Line 1: Jones + Lambson

Line 2: Springfield VT

Project Number:

PO:

Contact: Eric Kubic ekubic@ecsconsult.com

Phone: 413-386-4774

FAX:

Alt/Pager:

☐ NELAC analysis

TYPE OF ANALYSIS (circle)

DUST WIPES	PAINT (0.1 g)	SOIL (1 g)
AIR	TSP	TCLP (100g)
(min)	PM10	Other

Please use a separate form for each matrix.

Element ____ gravimetric

(Pb) Cd Cr As

Se Ag Ba Fe

Other (please specify under Comments)

☐ QC

For Laboratory Use

BATCH NUMBER: C 288256

☐ ASTM E1792

FOR LABORATORY USE ONLY

Date and Time Sampled	Field I.D.	Sample Description/Location	Air Sampling Information: Start Time	End Time	Start Flowrate	End Flowrate	Volume (liters)	Wiped area: length (inch)	width (inch)	Area (sq in)	ANALYSIS: Weight (grams)	Dil'n	AA/ ICP Reading	RESULT	Lab I.D.
5/4/16	Pb-1	exterior yellow Paint on wood window casing.													549808
	-2	exterior yellow concrete window casing Paint													09
	-3	Black metal elevator door Paint													10
	-4	Rm B1. gray concrete wall Paint.													11
	-5	Rm B4 white concrete ceiling Paint.													12
	-6	Rm 26. Purple [illegible] Block wall Paint													13
	-7	Blue Brick wall Paint. Boiler House.													14
	-8	Red wood siding Paint. collapsed Bldg.													15
	-9	Gray Paint on metal Boiler - Boiler House.													16
	-10	white Brick wall Paint Boiler House													17

Relinquished By: [signature] Kathy Artone — Date: 5/7/16 — Time: 5:00

Received By: — Date: 5-10-16 — Time: 12:30 pm

Comments:

ver 5.3

PAGE 1 OF 2

Field blanks are required for airs and wipes per the sampling method.

ProScience Analytical Services, Inc.

Chemistry Chain of Custody Record

LABORATORY/HEADQUARTERS
22 Cummings Park, Woburn, MA 01801
T:781-935-3212 F:781-932-4857

www.proscience.net
general@proscience.net

Turn Around Time Requested

Rush/<6 Hours	Same Day	Next Day	2 Day	3 Day	5 Days
				X	

Client: Environmental Compliance Services, Inc.

Address: Street 588 Silver Street

Town: Agawam, State/Zip: MA 01001

Project Site: Line 1 Jones & Lambson; Line 2 Springfield VT

Project Number:

PO:

Contact: Eric Kubic ekubic@ecsconsult.com

Phone 413-386-4774

FAX:

Alt/Pager:

☐ NELAC analysis

☐ ASTM E1792

TYPE OF ANALYSIS (circle)

DUST WIPES	PAINT (0.1 g)	SOIL (1 g)
AIR	TSP	TCLP (100g)
(min)	PM10	Other

Please use a separate form for each matrix.

Element: gravimetric

Pb Cd Cr As

Se Ag Ba Fe

Other (please specify under Comments)

☐ QC

For Laboratory Use

BATCH NUMBER: C

FOR LABORATORY USE ONLY

Date and Time Sampled	Field I.D.	Sample Description/Location	Air Sampling Information: Start Time	End Time	Start Flowrate	End Flowrate	Volume (liters)	Wiped area: length (inch)	width (inch)	Area (sq in)	ANALYSIS: Weight (grams)	Dil'n	AA/ ICP Reading	RESULT	Lab I.D.
5/4/16	P6-11	Green Steel I-Beam Paint - Rm 53													18
↓	-12	Yellow Block wall Paint. Rm 53													19
↓	-13	Green Block wall Paint. Rm 17													20

Relinquished By: E. Kubic Date: 5/7/16 Time: 5:00

Received By: Date: Time:

Comments:

ver 5.3

PAGE 2 OF 2

Field blanks are required for airs and wipes per the sampling method.

SECTION 02075

UNIVERSAL AND HAZARDOUS WASTE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Attention is directed to the BIDDING AND CONTRACT REQUIREMENTS and all Sections within DIVISION I - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

B. Related Sections

1. Division 2 – Asbestos Abatement Work Plan for Demolition of Structurally Unsound Former Jones & Lamson Facility

2. Division 2 – Section 02051 Asbestos Abatement

3. Division 2 – Section 02220 Demolition

4. Division 2 – Section 13282 Lead Containing Paint Handling

C. Related Information

1. Regulated Building Material Survey Report, Former Jones & Lamson Facility, 160 Clinton Street, Springfield, Vermont dated June 15, 2016, prepared by ATC Group Services (formally Environmental Compliance Services, Inc.).

2. Structural Engineering Observations and Recommendations for Environmental Sampling and Testing report dated May 20, 2016, prepared by Heritage Engineering.

3. Structural Observations, Jones & Lamson Building, report dated June 20, 2013, prepared by Heritage Engineering.

1.2 DESCRIPTION OF THE WORK

A. The Contractor shall provide labor, materials, and equipment to complete the work specified in this Section including, but not limited to, the removal and lawful disposal of hazardous materials, hazardous wastes, and special wastes. Generally, the management of miscellaneous hazardous materials shall include, but not be limited to:

1. Characterization (any testing that may be required by a disposal facility), removal, and disposal of hazardous materials or potentially hazardous materials, including but not limited to soot, ash, debris, liquids, solids, sludges, or combinations thereof.

2. Characterization (any testing that may be required by a disposal facility), removal, and disposal of fluorescent lights/ballasts, capacitors, thermostats, and transformers throughout site and site buildings/structures to be demolished.

3. Characterization (any testing that may be required by a disposal facility), removal, and disposal of contained gear oils, hydraulic oils and refrigeration liquids, etc. from various pieces of machinery and equipment, throughout all site buildings and structures to be demolished.

4. Characterization (any testing that may be required by a disposal facility), removal, and disposal of all tanks, containers, drums, and unknown materials throughout all site buildings and structures to be demolished.

5. Characterization (any testing that may be required by a disposal facility), removal, and disposal of loose paint chips and flaking and peeling paint from ceilings, walls and floors throughout all site buildings and structures to be demolished.

6. File all necessary notices, obtain all permits and licenses, and pay all governmental taxes, fees, and other costs in connection with the work. Obtain all necessary approvals of all governmental departments having jurisdiction.

7. Perform all sampling and testing required to properly profile the material for waste disposal. This shall also include all testing required by the disposal or recycling facility.

8. All costs for the testing shall be borne by the Contractor.

9. Comply with the Contractor's submitted Health and Safety Plan.

B. Table 1 provides Other Hazardous Materials (OHM) information related to hazardous materials that are/may be present and require removal prior to demolition. The quantities are provided for guidance and may not correspond exactly to the quantity to be removed. Contractor shall verify quantities of OHM's for bidding purposes.

TABLE 1
OHM INVENTORY
JONES AND LAMSON
SPRINGFIELD, VERMONT

Suspect Hazardous Item	Estimated Quantity
8' Fluorescent tube lights	3400 units
4' Fluorescent tube lights	40 units
Ballasts	2000 units
Sodium lamps	50 units
Emergency lights	10 units
Mercury Thermostats and Switches	30 units
Hydraulic door close	10 units
Suspended space heater	80 units
Hoist motors	8 units
Air compressors	2 units
Fire extinguishers	5 units

Disassembled turbines and motors	6 units
Commercial refrigerant tanks	3 units
Misc. oils and lubricants	Not Quantified

1.3 SCHEDULING AND SEQUENCING

A. The proposed Work may be performed in multiple phases.

B. The Contractor, Owner and the Designer shall develop a hazardous materials removal schedule for each phase of the work. The Owner or Designer may chose to alter the work sequence as they see fit.

C. The Contractor shall update the schedule and submit any schedule changes for review by the Designer at the weekly construction meetings.

1.4 LOCATION OF WORK

A. Locations, descriptions, estimated types and quantities of hazardous materials are described in this specification. If additional hazardous materials are encountered, the Contractor shall notify Owner immediately and be prepared to remediate the material.

B. The data tables identify hazardous materials encountered and enumerated during the survey. The quantities are provided for general guidance and may not correspond exactly to the quantity to be removed. The Contractor is responsible to investigate all structures for the presence of all hazardous materials. The Contractor shall determine quantities of hazardous materials for bidding purposes.

C. Handling, containerizing, packaging, re-handling, hauling and disposal of all items identified are to be included in the lump sum bid item of the Contract.

1.5 REFERENCES

A. The Contractor is advised to thoroughly review the documents referenced in this Section. Strict adherence to the hazardous materials, noise, air and water pollution regulations and requirements is required.

1. Code of Federal Regulations

a. 29 CFR 1910, “Occupational Safety and Health Standards” (General Industry Standards)

b. 29 CFR 1910.20, “Access to Employee Exposure and Medical Records

c. 29 CFR 1910.134, “Respiratory Protection”

d. 29 CFR 1910.146 “Permit Required Confined Space”

e. 29 CFR 1910.1025 “Lead”

f. 29 CFR 1910.1200, “Hazard Communication”

g. 29 CFR 1926, “Safety and Health Regulations for Construction” (Construction Industry Standards)

h. 29 CFR 1926.62, “Lead-Construction”

i. 40 CFR 50, “National Primary and Secondary Ambient Air Quality Standards”

j. 40 CFR 60, “Standards of Performance for New Stationary Sources,” Appendix B, “Test Methods”

k. 40 CFR 117, “Determination of Reportable Quantities for Hazardous Substances”

l. 40 CFR 122, “EPA Administered Permit Program: The National Pollutant Discharge Elimination System”

m. 40 CFR 172, “Hazardous Waste Transportation”

n. 40 CFR 261, “Identification and Listing of Hazardous Waste”

o. 40 CFR 262, “Standards Applicable to Generators of Hazardous Waste”

p. 40 CFR 263, “Standards Applicable to Transporters of Hazardous Waste”

q. 40 CFR 268, “Land Disposal Restrictions”

r. 40 CFR 300, “National Oil and Hazardous Substances Pollution Contingency Plan”

s. 40 CFR 302, “Designation, Reportable Quantities, and Notification”

2. Occupational Safety and Health Administration OSHA Booklet 3126 “Working with Lead in the Construction Industry”

3. National Institute for Occupational Health and Safety

a. NIOSH Method 7082, “Lead”

4. American Society for Testing and Materials

a. ASTM D3335, “Test Method for Low Concentration for Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy”

5. EPA (Environmental Protection Agency) Publications

a. SW-846, “Test Methods for Evaluating Solid Waste – Physical/Chemical Methods”

b. EPA Method 3050, “Acid Digestion of Sediments, Sludges, and Soils”

6. Steel Structures Painting Council

a. SSPC Guide 61 (CON) Guide for Containing Debris Generated During Paint Removal Operations

b. SSPC Guide 71 (DIS) Guide for the Disposal of Lead Contaminated Surface Preparation Debris

7. State of Vermont Agency of Natural Resources

a. Hazardous Waste Management Regulations

1.6 SUBMITTALS

A. The Contractor shall submit a Waste Management Plan. The Plan shall include identification of the proposed waste hauler and disposal facility with copies of all applicable licenses, registrations and approvals.

B. The Contractor shall provide copies of all worker certifications associated with OSHA 40 Hour Hazardous Waste Site Health and Safety Training in accordance with 29 CFR 1910.120.

C. The Contractor shall provide Owner with all required documentation relating to the proper removal and disposal of any hazardous or regulated waste that leaves the site in accordance with the Waste Management Plan.

D. After completion of the hazardous materials removal, provide a final report documenting removal, transportation and disposal activities. The document shall include copies of manifests, shipping slips, permits, and licenses for this Project.

1.7 QUALITY ASSURANCE

A. Examination of Existing Conditions: The Contractor shall examine the Specifications for hazardous waste identification, handling, removal, and disposal requirements and provisions.

B. Hazardous Waste Removal and Transportation Firm Qualifications: An experienced firm that has specialized in hazardous waste work similar in material and extent to that indicated for this Project.

C. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

D. Regulatory Requirements: Comply with governing EPA, State and Local notification regulations before beginning removing any hazardous waste materials. Comply with hauling and disposal regulations of authorities having jurisdiction.

PART 2 – MATERIALS

2.1 PROTECTIVE EQUIPMENT

A. Provide health and safety equipment required to protect workers and to comply with the Health and Safety Plan.

2.2 DISPOSAL BAGS

A. Disposal Bags: Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags.

2.3 DRUMS

A. DOT Hazardous Waste Disposal Drums: Provide DOT 17-H Open -Top Drums *(55* gallon) in accordance with DOT regulations title 49 CFR Parts 173, 178, and 179.

2.4 LABELS

A. DOT Hazardous Waste Labels: in accordance with DOT regulations, Title 49 CFR parts 173, 178, and 179.

PART 3 – EXECUTION

3.1 GENERAL WORK AREA SET UP

A. Signage: Prior to the preparation for work that will disturb hazardous materials; the Contractor shall place warning signs immediately outside all entrances and exits to the area.

B. Access to Work Areas: The Contractor shall allow only authorized personnel into the work area. Barrier tape shall be used to limit access to the exterior work area.

3.2 GENERAL HAZARDOUS WASTE MANAGEMENT

A. Do not mix potentially hazardous waste streams. Where feasible, separate each type of hazardous waste from other types of hazardous wastes, from asbestos waste and from construction waste.

B. Segregate, package, label, transport and dispose of Hazardous Waste in accordance with DOT, EPA, State and Local regulations.

C. The following wastes are designated as Hazardous Wastes and are non-salvageable:

1. Waste Type C lead base paint debris to include containers of paint and paint chips/debris.

2. Waste Type D characteristically hazardous metal-containing waste to include soot, ash and debris inside furnace, chimneys, and stacks.

3. Waste Type E HVAC and refrigerator refrigerant.

3.3 HAZARDOUS WASTE PACKAGING AND LABELING

A. Package each segregated Hazardous Waste Type A, B, C, D and E in separate specified containers as follows. IMPORTANT: Do Not Mix Waste Streams:

1. Waste Type A to be packaged in DOT 17-H open-top drums. Fill to capacity only with

Waste Type A (Do Not Mix Waste Stream types). Install gasket on lid, apply lock ring, and seal. Apply Hazardous Waste Label to drum side. Enter DOT Shipping Data as follows: RQ Waste Polychlorinated Biphenyls, 9, UN-2315, PG-II, (M00l). Adjacent to each label, enter the date indicating when waste was first placed in each drum.

2. Waste Type B to be packaged in DOT 17-H open-top drums with polyethylene disposal Bag liners. Fill liner bags only with Waste Type B (do not mix waste stream types). After full, neck liner bags down into DOT 17-H open-top drum and seal with duct tape. Install gasket on lid, apply lock ring, and seal. Apply Hazardous Waste Label to drum side. Enter DOT Shipping Data as follows: RQ Hazardous Waste Solid, NOS, 9, NA3077, PG-III, (D009). Adjacent to each label, enter the date indicating when waste was first placed in each drum.

3. Waste Type C to be packaged in DOT 17-H Open-Top Drums. Fill to capacity only with Waste Type C (do not mix waste stream types). Install gasket on lid, apply lock ring, and seal. Apply Hazardous Waste Label to drum side. Enter DOT Shipping Data as follows: RQ Hazardous Waste Solid, NOS, 9, NA3 077, PG-III, (~D009). Adjacent to each label, enter the date indicating when waste was first placed in each drum.

4. Waste Type D to be packaged in DOT 17-H open-top drums. Fill to capacity only with Waste Type D (do not mix waste stream types). Install gasket on lid, apply lock ring, and seal. Apply Hazardous Waste Label to drum side. Enter DOT Shipping Data as follows: RQ Hazardous Waste Solid, NOS, 9, NA3077, PG-III, (D009). Adjacent to each label, enter the date indicating when waste was first placed in each drum.

5. For Waste Type E, HVAC and refrigerator refrigerant shall be reclaimed for recycling from each unit by an EPA licensed contractor. The refrigerant shall be reclaimed using evacuation gas containers and submitted for recycling in accordance with the EPA Clean Air Act, Stratospheric Ozone Protection Regulations.

B. Maintain all containers in a continuously sealed condition after they have been filled. Do not reopen sealed containers or place additional waste in previously sealed containers.

3.4 LIGHT BALLASTS

A. Light ballasts requiring removal were observed throughout the Site.

B. Remove, characterize and lawfully dispose to an appropriate off-site PCB disposal facility all PCB and non-PCB light ballasts throughout the facility. In preparing his/her bid, the Contractor shall assume all light ballasts contain PCBs.

C. Document all disposal activities to insure compliance with regulations. Owner shall not pay for disposal until complete documentation of lawful disposal is received by Owner.

D. All light ballasts shall be removed by properly trained personnel in accordance with local, state, and federal regulations and all material shall be disposed of (i.e. recycled) by a disposal contractor who possesses at least one (1) year experience in the “Lighting Waste Recycling Industry”.

3.5 MERCURY

A. Under current federal regulations, items containing mercury may be classified as hazardous waste. These include, but are not limited to fluorescent lamps, high-intensity discharge lamps, manometers, thermostats and relay switches. The following shall be followed for disposal of all mercury items:

1. Collection, characterization and proper disposal of all fluorescent tubes and mercury items found throughout the site.

2. Care must be taken to not break these items, as that may cause mercury exposure to individuals handling them and may require additional clean-up and decontamination.

3. All materials leaving the site shall become the property of Contractor.

4. Provide all waste shipment records or recycling records and incorporate in the final report.

3.6 HAZARDOUS MATERIALS/CONTAINERIZED WASTE

A. All hazardous materials shall be characterized and disposed of in accordance with applicable regulations. Disposal manifests shall be provided for all waste disposal.

B. Workers who handle hazardous materials shall be licensed and trained in safe and proper hazardous materials handling procedures. At a minimum, this shall include OSHA 40 Hour Hazardous Waste Site Health and Safety Training in accordance with 29 CFR 1910.120.

C. Any hazardous materials containers in poor condition shall be removed as soon as possible.

D. Handling Hazardous Waste

1. Place waste in DOT approved containers and label the containers for transport to a licensed disposal site.

2. Use an authorized hazardous waste transporter to haul waste to a hazardous waste facility.

3. Follow all record keeping, chain-of-custody and reporting requirements, including a copy of the hazardous waste manifest.

4. Accurately measure and weigh the volume of each container or load of waste removed from the site. Submit records of waste volumes to Owner and the Designer.

5. Special attention shall be given to the time of storage, amount of material stored at any one time, use of proper containers and personnel training.

6. Paint debris shall not be placed on the unprotected ground and shall be shielded to prevent dispersion of the debris by wind or precipitation.

7. Provide appropriate notifications to regulatory agencies if there is a release to the environment exceeding the CERCLA reporting requirements (e.g. lead - 1 pound).

8. Any evidence of improper storage shall be cause for immediate shutdown of the project until corrective action is taken.

9. Provide legal transportation of the waste to the disposal landfill, and complete or obtain all required licenses, manifests, landfill slips, or other forms. Copies of all forms or licenses, and the signed original of the Waste Manifest for each waste load, shall be given to the Designer and Owner.

3.7 REFRIGERANT

A. Collect and analyze refrigerant samples, as necessary, to identify system gases from all refrigerant-containing vessels and systems. These systems include, but are not limited to, HVAC systems, air conditioners, refrigerators, freezers, associated coolant lines and water coolers.

B. Evacuate all refrigerant-containing vessels and systems using a vacuum pump. Furnish and install all necessary valves and fittings required to capture and collect the refrigerant in DOT-approved recovery cylinders or drums. Properly label all recovery cylinders and drums.

C. All activities associated with the removal and reclamation of refrigerant gases shall be in accordance with Section 608 of the Federal Clean Air Acts Amendment of 1991.

D. After removal of refrigerants, tanks, vessels, piping, white goods, and other items shall be disposed of in accordance with applicable regulations. Owner shall not pay for disposal until complete documentation of lawful disposal is received by Owner.

3.8 MACHINERY FLUIDS SYSTEMS FLUIDS

A. Drain all equipment containing hydraulic fluids, lubricating oils, fuel oil, antifreeze, and all other types of fluids. Decontaminate all systems, including piping, by means of steam cleaning or triple rinsing, or both, with a compatible fluid to remove all visible contamination.

B. Collect and drum all fluids, including decontamination fluids drained from the above described equipment.

C. Label drums for transport and disposal.

D. After removal of all hazardous components, dispose of remaining equipment carcasses and piping in accordance with applicable regulations. The Contractor shall submit documentation verifying removal, transportation, and disposal at the approved disposal facility.

E. Owner shall not pay for disposal until complete documentation of lawful disposal is received by Owner.

3.9 WHITE GOODS AND OTHER ITEMS

A. Remove and properly dispose of all environmentally hazardous items and systems components installed in white good item before proper disposal of the unit. This work includes, but is not limited to:

1. Water coolers.

2. Air conditioners.

3. Refrigerators and freezers.

B. White good items which do not contain environmentally hazardous materials, and white good item carcasses from which the Contractor has removed environmentally hazardous materials prior to removal from the building, shall be removed, transported and disposed of at approved facilities.

C. Owner shall not pay for disposal until complete documentation of lawful disposal is received by Owner.

3.10 REMOVAL OF TRANSFORMERS (IF APPLICABLE)

A. All transformers (if scheduled for disturbance) shall be handled with appropriate personal protective equipment. Unless otherwise noted, the Contractor, shall assume that all unmarked transformers contain oil with >50 ppm PCBs.

B. Prepare each transformer to be electrically disconnected in compliance with the National Electrical Safety Code, the National Electric Code, and OSHA regulations.

C. Transformers labeled “dry-type” shall be handled and disposed of as white goods, in compliance with 310 CMR 19.017, *Waste Control*.

D. Transformers identified as not containing PCBs or labeled “No PCBs” shall be drained, if necessary, and shall be marked with green paint. The fluid shall be placed in properly sealed drums and painted green, and shall be sampled and analyzed by the Contractor, as required, for transportation and disposal purposes.

E. Each transformer not positively identified as containing “No PCBs” shall be sampled in place to determine the concentration of PCBs prior to any removal activities, as required for transportation and disposal purposes.

F. Before sampling transformers, the Contractor shall take the following preparatory and precautionary measures. These measures shall remain in effect for the duration of the transformer sampling and removal process.

1. Cover and seal all drains, manholes, and other openings that may lead to waterways in such a manner to prevent any migration of the contaminants.

2. Provide temporary containment designed to contain the entire contents of the fluid to be removed. This containment shall encompass the transformer and any areas designated for temporary storage. In addition, absorbents in the amounts adequate to absorb a spill from one complete equipment failure shall be placed within the containment area.

3. Provide adequate spill cleanup equipment within the containment area.

G. The laboratory proposed by the Contractor shall be certified for such analyses by the State of Vermont, and shall be capable of demonstrating skill and experience in similar projects. The

laboratory shall forward copies of all reports and technical correspondence directly to the Designer. All reports shall completely and positively identify each transformer sampled.

H. Following the disconnection of the electrical power source, pump PCB fluids in place from the equipment into specified containers before moving to minimize the accidental release of fluids. The PCB-filled type of electrical equipment is not intended for use as transport vessels and, therefore, must be drained of fluids before removal and transport. Following draining and drumming of fluids, transformers shall be moved from the existing location to the loading area where they will be loaded onto a truck and transported to the disposal facilities. Each drum shall be properly labeled and sealed.

I. Any transformers identified shall be marked with paint as follows:

1. Green: No PCBs.

2. Red: Containing PCBs.

J. Transformers shall then be ready to be moved and transported to the applicable disposal facility.

K. Unless otherwise indicated on the plans, all transformers are to be removed and disposed of by the Contractor in accordance with the applicable laws and regulations. The Contractor shall assume that all transformers identified contain oil with concentrations of PCBs greater than 500 ppm.

3.11 FIRE EXTINGUISHERS

A. Fire extinguishers may contain corrosive agents (monoammonium phosphate, ammonium phosphate) and may be reactive in water.

B. De-pressurize prior to disposal.

C. Fire extinguishers and their contents shall be landfilled in accordance with regulatory requirements. Do not discharge to the ground or to surface water. Do not cross contaminant with other fire extinguisher agents.

D. Submit proof of disposal to the Designer.

3.12 TEMPORARY STORAGE

A. Partially filled containers of hazardous waste may be stored at the work site for intermittent packaging provided that:

1. Each container is properly labeled when it is first placed in service;

2. Each container remains closed at all times except when compatible waste types are added; and

3. When moved from site to site, each container remains within the geographic boundaries of the facility without moving or crossing public access highways.

3.13 TRANSPORTATION, DISPOSAL AND/OR RECYCLING OF HAZARDOUS WASTES

A. Continuously maintain custody of all hazardous material generated at the work site. Provide security, short-term storage, transportation and disposition until custody is transferred to an approved properly permitted disposal site or recycling center. Document continuous chain-of custody.

B. Do not remove, or cause to be removed, hazardous waste from the Owner's property without a legally executed Uniform Hazardous Waste manifest.

C. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to the Designer.

D. Recycling and Recovery: Where accessible, turn over waste that contains materials for which recovery and/or recycling is possible to an approved recycling center. Materials subject to recycling include:

1. Fluorescent light tubes.

2. Thermostats with mercury switches.

3. Lead acid batteries

4. Refrigerant

3.14 DISCOVERY OF HAZARDOUS MATERIALS

A. If hazardous materials, such as chemicals, or other hazardous materials are discovered during the course of the work other than those identified in the Plans and Specifications, cease work in affected area only and immediately notify the Designer and Owner of such discovery. Do not proceed with work in such areas until instructions are issued by the Designer. Continue work in other areas.

B. If unmarked containers are discovered during the course of the work other than those identified in the plans and Specifications cease work in the affected area only and immediately notify the Designer and the Owner of such discovery. Do not proceed with work in such areas until instructions are issued by the Designer. Take immediate precautions to prohibit endangering the containers integrity. Continue work in other areas.

END OF SECTION

SECTION 02220

DEMOLITION

PART 1 GENERAL

1.01 DESCRIPTION:

A. This Section specifies the demolition work within the Limits of Work shown on the Contract Drawings. Demolition work, as shown on the Contract Drawings and described herein includes, but is not limited to, the removal, proper disposal, or recycling (of cleaned material) of the following: all aboveground structures of the Former Jones and Lamson Facility as shown on Sheet C-4 of the Contract Drawings; all internal and external building contents; ancillary items and structures; and debris/materials within the Limit of Work. The concrete floor slab and below grade areas (basements, crawl spaces, pits, sumps, trenches, etc.) are to remain as specified herein.

Other work included in this section includes, but not limited to: establishment and maintenance of Restricted Zones in PCB-impacted concrete floor areas within the buildings and construction of PCB Cap over designated areas as shown on Sheet C-5 of the Contract Drawings and specified herein.

The Contractor shall verify the construction and condition of the buildings by site inspection, as well as the information presented in these Contract Documents, and shall provide all resources to perform the demolition work.

B. As identified in the Structural Reports included in Appendix A, the building complex is in very poor condition with many structural hazards. With the exception of the Boiler House, Pump House and an area of the main building complex identified on Sheet C-4 that will require abatement of approximately 2,000 linear feet of asbestos containing thermal system insulation (TSI) prior to demolition, the remaining above slab building components will require bulk-loading and disposal as asbestos containing material (ACM). The Contractor should clean non-porous building components (e.g., steel columns) for recycling per applicable regulations.

C. The Contractor shall demolish the buildings according to the phasing plan approved by the Vermont Department of Health (VTDOH) Asbestos and Lead Regulatory Program and EPA Region 1 – NESHAP as shown on Sheet C-3 of the Contract Drawings. The Contractor may propose an alternate phasing plan based on their preferred means and methods, but will require submittal and approval of an alternate plan from VTDOH and EPA Region 1 - NESHAP at no additional cost to the Owner.

1.02 RELATED SECTIONS:

Due to the nature of the work described in this Section, the Contractor shall examine the Contract Documents thoroughly for requirements that affect work of this Section. Other Specification Sections that directly relate to the work of this Section include, but are not limited to, those listed below:

A. Section 00890 – Permits
B. Section 01014 – Scope and Sequence of Work
C. Section 01380 - Health & Safety Plan
D. Section 01562 – Dust Control
E. Section 01570 – Environmental Protection
F. Section 02051 – Asbestos Abatement
G. Section 02075 - Universal and Hazardous Waste
H. Section 02222 - Utility Abandonment
I. Section 02240 – Dewatering
J. Section 02300 - Earthwork
K. Section 02821 - Chain Link Fencing
L. Section 13282 – Lead Containing Paint Handling

1.03 DEFINITIONS:

A. Demolish – To tear down, segregate waste streams, and lawfully recycle or dispose of all debris generated in the process including structure contents.

1.04 SUBMITTALS:

A. Quality Control Submittals (prior to commencement of demolition):

1. Project Schedule in accordance with Section 01014 – Scope and Sequence of Work and Section 01310 - Construction Scheduling.

2. Demolition and Waste Management Plan as specified in Paragraph 1.04.E of this Section.

3. Copies of any authorizations and permits required to perform the work, including disposal/recycling facility permits.

B. Contract Closeout Submittals (throughout project and prior to authorization of final payment):

1. Records of the amounts of waste generated, by waste type, shall be submitted and up to date with each request for payment. Requests for payment will be returned, in the event that this requirement is not met.

2. Evidence of lawful disposal or recycling of all wastes generated (including weight slips from the disposal/recycling facilities), shall be submitted and

up to date with each request for payment. Requests for payment will be returned, in the event that this requirement is not met.

3. Documentation of utility abandonment as identified in Part 3 of this Section, Section 01770 – Project Closeout, and Section 02222 – Utility Abandonment.

4. Complete Material Tracking Log as specified in Paragraph 3.07 of this Section.

5. Daily Logs, Weekly Reports, and Phase-Out Report as specified in Paragraph 3.09 of this Section.

C. Permits and Certificates: Submit permits and certificates to the Engineer prior to start of demolition work; coordinate with the requirements of Section 00890 – Permits. Submit certificates of severance of utility services.

D. Lead Compliance Plan: Prior to the start of demolition work, and no later than 30 calendar days after the date of the Notice to Proceed, submit a site-specific Lead Compliance Plan in accordance with OSHA Lead in Construction Standard 1926.62 that identifies all lead hazards and proper work procedures for the work of this Section. Coordinate Lead Compliance Plan with the requirements of Section 13282 – Lead Containing Paint Handling.

E. Demolition and Waste Management Plan: Prior to the start of demolition work, and no later than 30 calendar days after the date of the Notice to Proceed, submit a comprehensive Demolition and Waste Management Plan, stamped and signed by a Vermont Professional Engineer, for the Engineer's review and approval prior to demolition work. The Demolition and Waste Management Plan shall be coordinated with, and as appropriate include reference to, the various plans and submittals required by these Specifications. At a minimum the Contractor’s Demolition and Waste Management Plan shall specifically include and address the following:

1. A schedule that details the sequence of demolition both for the sequence of work within a building section and for the overall sequence for the building complex (see the Phasing Plan on Sheet C-3 of the Contract Drawings) being demolished under this Contract.

2. Methods and equipment proposed to protect PCB-impacted floors (Restricted Zones) prior to demolition and methods to demolish structures to limit dispersion of dust and damaging PCB protection layer. No torch cutting, mechanical sanding, stripping, or abrasive methods of paint removal shall be allowed per Section 13282 - Lead Containing Paint Handling. Include information such as catchment system protection details and procedures, equipment types and placement, name and address of all transporters, and protection controls, including protection to abutting

parcels and walls to remain. In addition, include specific methods and equipment to demolish roof safely for each phase.

3. A site plan indicating Contractor's intended plan and identifying location for various aspects such as temporary demolition staging and stockpiling areas, debris storage areas, dumpster/container locations, truck loading areas, equipment and material storage, temporary sanitary facilities, employee parking and similar information.

4. The Contractor shall describe the proposed sequence, methods, and equipment to clean the demolition debris above the Restricted Zones, as shown on the Contract Drawings, to limit co-mingling with PCB-impacted material. The Contractor shall provide details for methods to collect and dispose run-off, debris, and cleaning materials, as required. The dirt, dust, debris, residue collected beneath the PCB protection layer, along with the polyethylene sheeting and plywood, shall be handled and managed as hazardous waste and considered a dual PCB/ACM waste and disposed as such.

5. Address the following demolition related items, as applicable:

   a. Temporary structural supports (e.g., scaffolding) during demolition, if required by the Contractor to safely demolish the buildings.

   b. Calculations for floor loading adequacy above the basement area to support any equipment that the Contractor will have on any of the building floors above the basement during demolition.

   c. Competent person to supervise the erection and dismantling of scaffold on-Site, as required.

   d. Identification of prohibited activities, e.g. prohibition of the use of cross bracing as a working surface, climbing device or as handrails, etc.

   e. Limitations of work during adverse weather conditions.

   f. Methods of temporary protection for the poles, overhead wires, and pole-mounted transformers on or near the Site, when, and if, applicable.

   g. Methods of demolition of the buildings that show how adjacent structures/walls to remain are being protected / supported during abatement and demolition activities. In particular, protection of the southern separation wall between the 1979 addition (to remain) and the northern sections of the building being demolished and protection of the northern portion of the building designated to remain.

7. The Contractor shall describe the proposed sequence, methods, and equipment to clean material, if required, to be recycled off Site. The Contractor shall provide details for methods to collect and dispose run-off

and cleaning materials, as required. Submit, as required, applicable permits, certificates, and/or sampling analyses demonstrating material to be recycled off Site meets recycling facility requirements.

8. Describe the different waste streams anticipated (e.g., recycling metals after cleaning, ACM bulk load-out materials, dual PCB/ACM waste, etc.) to be generated and propose appropriate disposal or recycling facilities that will accept the materials. The Contractor shall identify and make arrangements with all off-Site reuse, recycling, and disposal facilities to be used, including back-up disposal and recycling facilities. Disposal/recycling facilities listed in the EPA Superfund Program will not be accepted as disposal/recycling facilities for this Work. The Contractor shall not remove any demolition materials from the Site unless approved by the Engineer and until the Demolition and Waste Management Plan has been approved. The Contractor shall not remove any material to any off-Site facility not listed in the approved Demolition and Waste Management Plan. If, following approval of the Demolition and Waste Management Plan, the Contractor desires or identifies a need to use any facility not included in the Plan, he must submit the information as required by this Paragraph, and receive approval for same, prior to such use.

   For each disposal and recycling facility, the Contractor shall submit the following information:

   a. General Information

      i. Facility Name
      ii. Facility Address
      iii. Name of Contact Person
      iv. Title of Contact Person
      v. Telephone Number of Contact Person
      vi. Permit Number

   b. The disposal or recycling facility shall provide a listing of all applicable permits, licenses, letters of approval, and other authorizations to operate that they hold, pertaining to the receipt and management of the demolition materials to be taken to that facility.

   c. The disposal or recycling facility shall provide written confirmation that they are permitted to accept and will accept the demolition materials of the general quality and quantity described by these Specifications.

   d. Confirmation from the disposal or recycling facility that they will accept the type and quantities of demolition materials. The Contractor shall submit a complete list of the disposal or recycling facility's permitted allowable contaminant levels, if applicable, and physical characteristic

requirements for demolition materials, and list any required regulatory approvals for individual waste streams.

e. Description of Contractor's procedures to manage and track demolition materials and example of Contractor's material tracking log. The Contractor shall submit weight slips from recycling/disposal facilities for all waste streams to the Engineer.

f. The disposal or recycling facility shall specify the volume of demolition materials that can be accepted from the Site on a weekly and a total basis.

9. All pertinent information relating to the transport of demolition material. The information, at a minimum, shall include:

a. Name and address of all transporters.

b. Transporter identification number (USEPA or Vermont Agency of Transportation) and expiration date.

c. Proof of permit, license, or authorization to transport excavated material, when applicable, in all affected states.

d. Dust control measures.

F. Laboratory results for all samples collected and/or analyzed by the Contractor shall be submitted to the Engineer within 2 days of receipt in tabulated spreadsheet form summarizing detections and exceedences of applicable criteria along with the raw laboratory data package. The results shall include all Chain-of-Custody forms and all documentation provided by the laboratory. Analytical data shall be distributed only to the Engineer and Owner.

G. Disposal and Recycling Receipts: Prior to submission of a periodic invoice for payment for Work including materials disposal, and within 21 days of transportation from the Site, the Contractor shall document actual disposal and/or recycling of the demolition materials at the designated disposal/recycling facility by completing an associated disposal/recycling certificate and submitting the original to the Engineer together with all associated disposal/recycling receipts from the disposal or recycling facility. Such certificates and receipts shall bear the printed name of the facility operator and shall specify the date of delivery; the quantity and type of material delivered, and shall be signed by an on-site representative of the facility operator. Payment may be withheld at the discretion of the Engineer for the disposal/recycling of demolition materials for which there are no signed disposal/recycling receipts.

1.05 REGULATORY REQUIRMENTS:

A. Contractor is solely responsible for obtaining permits or approvals which may be required to perform the work of this Section, including all costs, fees and taxes required or levied.

B. Notify and obtain such permits or approvals from all agencies having jurisdiction over demolition prior to starting work including, but not limited to Health, Building, and Fire Departments of the municipality and local, State and Federal agencies.

C. Comply with all applicable Federal, State, and local environmental, safety and health requirements regarding the demolition of structures and other Site features and recycling or disposal of demolition materials, including building contents, as applicable.

D. Conform to applicable codes and requirements for demolition of structures, safety of adjacent structures, dust control, service utilities, and discovered hazards.

E. Conform to procedures identified in Section 01380 – Health and Safety Plan.

F. Dispose or recycle all demolition debris in accordance with all applicable regulations.

G. Contractor performing this work shall be thoroughly knowledgeable of all Federal, State and local laws, rules, and regulations regarding materials containing or coated with lead or lead products. Collection, treatment, and disposal of all lead-containing wastes shall be in strict accordance with current applicable Federal, State, and local laws, rules, and codes, including, but not limited to, Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), Occupational Safety and Health Act (OSHA), and USEPA. Refer to Section 13282 – Lead Containing Paint Handling for additional requirements.

1.06 PROJECT CONDITIONS:

A. Occupancy: All buildings to be demolished are unoccupied.

B. Condition of Structures: The Owner assumes no responsibility nor makes any claim as to the actual condition, or the structural adequacy of any existing construction to be demolished. The Contractor shall investigate and assure himself of the condition of the work to be demolished and shall take all precautions to ensure safety of persons and property. See the Structural Reports in Appendix A, Site Photographs and Historical Plans in Appendix B, Section 01014 – Scope and Sequence of Work and the Contract Drawings for additional information.

C. Site inspections were conducted to note the contents of buildings. Asbestos containing materials found in the buildings are summarized in Section 02051 –

Asbestos Abatement and other hazardous materials and white goods are summarized in Section 02075 - Universal and Hazardous Waste.

D. Items of value that are not indicated to be returned to the Owner shall become the property of the Contractor. Storage or sale of items on the Project Site is prohibited.

E. Explosives: Not permitted.

F. Protection: Ensure the safe passage of persons in and around the buildings during demolition. Prevent injury to persons and damage to property. Provide adequate shoring and bracing to prevent collapse. Immediately repair damaged property to the condition before being damaged.

G. Refer to Section 01014 – Scope and Sequence of Work, Appendix A, Appendix B and the Contract Drawings for a general description of the buildings to be demolished.

1.07 PROTECTION AND CONTROLS:

A. The Contractor shall perform his operations in such a manner, including any necessary support of excavation and dewatering as specified in the Contract Documents, as to prevent movement or settlement of adjacent structures, or movement, settlement, or collapse of adjacent services and sidewalks. Cease operations and notify the Engineer immediately if safety of adjacent structures or services appear to be endangered. Do not resume operations until safety is restored. Contractor shall be solely responsible and liable for any such movement, settlement, damage, or injury due to his operations. Promptly repair damage at no cost to the Owner. Coordinate with the requirements of Section 01110 – Control of Work and Materials.

B. The Contractor shall support the excavations to prevent undermining of the remaining concrete floor slabs.

C. Fall protection shall be provided whenever the work is at heights greater than six feet, and or where holes and openings exceed six feet in depth. Contractor shall provide barriers at floor openings and demolished stairways and vertical shafts, and maintain same at all times that a potential fall hazard to workers may exist. The design and use of personal fall arrest and restraint systems, and training of personnel shall comply with ANSI standards. Safety harnesses shall be required for all fall arrest systems. Safe access shall be maintained at all times by the use of scaffold ladders, stair towers, or other acceptable means. Platform planks shall be used in lieu of the commonly used single plank during erection and dismantling.

D. Comply with governing regulations pertaining to environmental protection. Coordinate with the requirements of Section 01570 – Environmental Protection.

E. Conduct demolition operations to prevent migration of dust, dirt, debris, and odors/vapors to adjacent structures and improvements. Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering into the air. All trucks must be covered when transporting debris from the Site. All vehicles leaving the Site must be cleaned to avoid distribution of dust and dirt to the surrounding areas. Coordinate with the requirements of Section 01562 – Dust Control, Section 02051 - Asbestos Abatement, and Section 01570 – Environmental Protection.

F. The Contractor shall use extra care to minimize water flowing across Restricted Zone areas of the buildings, as shown on the Contract Drawings, due to the contaminated concrete floor slabs. The Contractor shall limit exposure to the contaminated concrete floor slab in the Restricted Zones by covering the floor slab with 2 layers of 10-mil (minimum) NRPE, plywood and securing the edges of the NRPE to concrete slab with adhesive per Part 3 of this section.

G. The Contractor shall make special provisions to prevent excessive noise during demolition. Temporary noise barriers shall be erected by the Contractor at the direction of the Engineer if the noise level at the perimeter of the Site is determined as excessive. Refer to Section 01570 – Environmental Protection for noise control requirements.

1.08 QUALITY CONTROL

A. The responsibilities of the Contractor shall include, but not be limited to, the items identified below. The Contractor shall engage the services of an Environmental Consultant, if required, prior to and during the course of the Work.

1. Evaluation of existing analytical data and performance of any additional sampling, at no additional cost to the Owner, required for the removal of contaminated materials to meet all State and Federal regulations and disposal requirements.

2. Preparation of draft material shipping records, Asbestos Waste Shipping Records and Hazardous Waste Manifests for transportation and disposal/recycling of demolition materials shall be submitted to the Engineer for review and comment. The Contractor shall be responsible for submitting completed Hazardous Waste Manifests, Asbestos Waste Shipping Records, material shipping records, and other shipping documents to the Engineer within two weeks of shipment to a disposal/recycling facility.

3. Submit the executed transportation and disposal/recycle documents to the appropriate Federal, State and local agencies with copies of all documents submitted to the Engineer in the required time frame for submittal.

4. Preparation of necessary documents to support response actions for oil and/or hazardous material releases resulting from Contractor activities. These documents shall be submitted to the Engineer for review prior to submittal to any regulatory agency.

5. Ensuring compliance with all regulatory requirements listed in Paragraph 1.05 of this Section.

6. Ensuring that the work is performed in compliance with all local, State and Federal regulatory agencies governing the handling of contaminated and hazardous materials.

7. Ensuring that Best Management Practices are employed while performing the work described in this Section.

8. Advise the Engineer at least three working days in advance of the schedule for off-Site disposal/recycling.

9. Collect, analyze and characterize samples of stockpiled demolition material, as required, prior to off-Site disposal as specified in Part 3 of this Section.

10. Keep records, including daily logs and photographs, of all waste streams, weights, stockpiles, including crushed brick and concrete, for the purposes of tracking points of origin.

11. Develop and implement dust control measures, which will adequately protect workers and residents in the nearby community, and prevent off-Site migration of dust and vapors. Refer to Section 01562 - Dust Control and Section 02051 – Asbestos Abatement.

12. Evaluation of existing analytical data and performance of any additional sampling, at no additional cost to the Owner, required for the removal of demolition materials to meet all State and Federal regulations and disposal/recycling requirements.

13. The work shall conform to Federal, State and local regulatory agencies governing the handling of contaminated and hazardous materials.

PART 2 - PRODUCTS

2.01 POLYETHYLENE SHEETING:

A. 10-mil (minimum) nylon-reinforced polyethylene (NRPE) sheeting shall be used for the PCB protection layer in the Restricted Zones.

B. NRPE sheeting shall conform to the following specifications:

1. The membrane shall be manufactured of new, first quality product designed and manufactured specifically for the intended use.

2. The material shall be 10-mil polyethylene reinforced with a non-woven grid of high strength nylon cord.

3. The material shall be ultra-violet resistant and cold crack resistant to -40 degrees Fahrenheit.

4. The materials shall be manufactured in a minimum 12-foot seamless width. Labels on the roll shall identify the thickness, length, width and manufacturer's mark number.

C. 6-mil polyethylene sheeting shall be used for all stockpile sheeting and as part of the PCB Cap after demolition activities as specified herein.

2.02 PLYWOOD:

A. Half (1/2) inch (minimum) plywood shall be used for the PCB protection layer in the Restricted Zones.

PART 3 - EXECUTION

3.01 GENERAL:

A. Demolition work, as shown on the Contract Drawings and described herein includes, but is not limited to:

1. Demolition and removal of the existing buildings, with the exception of sections designated to remain, of the Former Jones and Lamson Facility at 160 Clinton Street in the Town of Springfield, Vermont. Demolition and removal shall include all structural components, down to slab-on-grade, including building contents and all appurtenant structures as designated on the Contract Drawings and described in these Specifications. Refer to Sheet C-2 for the PCB-impacted areas.

2. As identified in the Structural Reports included in Appendix A, the building complex is in very poor condition with many structural hazards. With the exception of the Boiler House, Pump House and an area identified on Sheet C-4 that will require abatement of approximately 2,000 linear feet of asbestos containing thermal system insulation (TSI) prior to demolition, the remaining above slab building components and all building contents, including but not limited to any furnishings; fixtures; equipment; mechanical aspects (e.g., HVAC system, etc.) will require bulk-loading and disposal as asbestos

containing material (ACM). The Contractor may clean non-porous building components (e.g., steel columns) for recycling per applicable regulations.

3. Establishment and maintenance of "Restricted Zones" in areas shown on the Contract Drawings to have elevated PCB concentrations (greater than or equal to 1 ppm) on the floor slabs and shallow soils. The Restricted Zones shall be clearly marked and access will be limited as described herein.

4. The dirt, dust, debris, residue collected beneath the PCB protection layer, along with the polyethylene sheeting and plywood, shall be handled and managed as hazardous waste and considered a dual PCB/ACM waste and disposed of as such.

5. Demolition and removal of all ancillary items and structures within the Limit of Work, including piles of debris, solid waste materials, existing fences, signs, stairs, and ramps as indicated on the Contract Drawings, but may not be specifically shown, and described in these Specifications.

6. Parking lots, driveways, sidewalks, and curbing to be left in place.

7. Lawful disposal of, or recycle of, all demolition debris.

8. Demolition and removal all miscellaneous trash, solid waste, and debris within the Limits of Work.

9. After each applicable demolition phase and after the removal and disposal of the PCB protection layer, install the PCB cap over the areas identified on Sheet C-5. Place 6-mil polyethylene sheeting, secure edges of sheeting with adhesive, place straw wattles around the perimeter of the cap area and place 2-inches of processed gravel as shown on the Contract Drawings

B. Verify Site conditions before proceeding with demolition work. Field check the accuracy of the Contract Drawings and inspect structures and utilities prior to start of work and notify the Engineer in writing, of any hazardous conditions and/or discrepancies. Primary structures and other site features are shown on the Contract Drawings and in the attached photographs (see Appendix B - Site Photographs and Historical Plans); other smaller structures, including, but not limited to, concrete pads, miscellaneous signs, and fencing may not be shown on the Drawings, but may exist within the Limit of Work and shall be demolished as part of the work of this Section.

1. Unknown Site Conditions - The information provided on the Contract Drawings and in the Specifications is believed to be accurate, but Contractor should field verify all information. Contractor shall bear full responsibility for obtaining all locations of underground structures, utilities and their connections.

2. Interior Elements - Interior features are described in the Specifications and are shown on the Contract Drawings and in the attached appendices. All interior features should be visually inspected prior to submittal of bid during the mandatory Site tour, and again prior to initiation of on-Site work. Contractor shall be responsible for performing its own inspection and appraisal of all features and facilities to be demolished or removed for salvage. Contractor shall also investigate to assure itself of the condition of the buildings to be demolished and shall take all precautions necessary to ensure safety of people and property.

C. The demolition of the buildings and related appurtenances shall be accomplished by methods that will not cause damage to, or undermine, surrounding structures, underground and overhead utilities, or other existing items and structures that are to remain in place. The Contractor shall support the excavations adjacent to buildings to prevent undermining of the remaining concrete floor slab.

D. All debris shall be promptly and properly managed as the demolition progresses. Prepare stockpile/storage areas as specified herein at locations approved by Engineer.

E. Demolition shall be by mechanical methods unless otherwise approved. No blasting or hot work (torch cutting, etc.) shall be permitted.

3.02 SITE PREPARATION:

A. All overhead hazards, which are imminent dangers, shall be removed and/or stabilized prior to work commencing near any building. Where hazards are not readily accessible, Contractor shall mark and control areas below hazards to prohibit access below the hazards. This shall be performed with caution tape, saw horses, safety fence or other types of barricades as determined by applicable safety codes. Similarly, all holes through the floors or weak sections of the floor and/or roof shall either be covered or clearly marked to prohibit entry. Floor coverings shall be capable of supporting heavy equipment use.

B. Terminate, discontinue, and cut/cap utilities serving the individual buildings prior to demolition, as specified on the Contract Drawings and Section 02222 – Utility Abandonment.

C. Prior to demolition, remove asbestos containing materials and other hazardous materials prior to structure demolition, in accordance with Section 02051 – Asbestos Abatement and Section 02075 - Universal and Hazardous Waste.

3.03 RESTICTED ZONES / PCB PROTECTION AREAS:

A. The Contractor shall establish and maintain Restricted Zones as shown on the Contract Drawings and specified herein.

B. Prior to abatement and demolition activities, the Contractor shall install a temporary driveway on the eastern side of the property (between the building and the river) to prevent the disturbance of PCB impacted soils during load-out operations as shown on Sheet C-3 of the Contract Drawings. The temporary driveway will consist of a geotextile fabric and 6-inches of stone. The temporary driveway will remain for use by the Owner on the next phase of work at the Site The fabric and bottom layer of stone will be removed and disposed of as PCB waste, as required, by others during the next phase of work.

C. Prior to abatement and demolition activities, the contractor shall install a protective layer on the PCB impacted floor areas. The protective layer shall include:

1. A layer of 10-mil nylon reinforced polyethylene (NRPE) sheeting over the PCB areas. The NRPE sheeting edges will be secured to the concrete floors with adhesive.

2. A layer of ½-inch (minimum) plywood will be installed over the NRPE sheeting.

3. An additional layer of 10-mil NRPE sheeting will be installed over the plywood.

D. The Contractor shall maintain NRPE sheeting during the course of the work and replace torn/damaged sheeting, as required. The Contractor shall mark the Restricted Zones with non-toxic spray paint, place safety cones and caution tape around the areas and limit access to foot traffic and rubber wheeled equipment during demolition activities, as required. Workers and equipment shall remain on the NRPE sheeting within the Restricted Zone and shall remove demolition debris from the sheeting immediately.

E. The Contractor shall use extra care to minimize water flowing across Restricted Zone areas of the buildings and provide the necessary means to retain all water runoff generated by dust control and treat or dispose of such water as specified in Section 02240 – Dewatering.

F. The dirt, dust, debris, residue collected beneath the PCB protection layer, along with the polyethylene sheeting and plywood, shall be handled and managed as hazardous waste and considered a dual PCB/ACM waste and disposed of as such.

3.04 DEMOLITION:

A. General

1. General demolition material/debris that is not recycled shall be disposed of at an approved off-Site disposal facility as specified in Paragraph 1.04.E.7 of this Section and in accordance with all Federal, State and local regulations.

2. Good management practices shall be used by the Contractor so that no public nuisance is created.

3. The Contractor shall barricade/secure work area as necessary to protect workers and general public from falling debris.

4. The Contractor shall not leave unstable structures unattended and shall plan the workday so that all structures are stable at the end of each work day.

5. The Contractor shall coordinate the location and use of temporary water service for demolition activities with the Town of Springfield Department of Public Works (DPW) and shall provide required backflow preventer(s), at no additional cost to the Owner. See Section 01140 – Special Provisions.

B. Demolition Waste Streams

The Contractor shall manage waste streams from the demolition of the buildings and ancillary structures at the Site under three (3) general categories : 1) ACM bulk load-out; 2) Non-porous materials such as steel to be cleaned and recycled; and 3) Dual PCB/ACM waste as described herein.

C. Structures to Remain

The northern and southern walls that are to be left shall be protected from damage and repaired/stabilized as shown on Sheets C-5 and D-3 of the Contract Drawings.

D. Sumps, Pits and Trenches

After abatement and demolition activities, the Contractor shall backfill sumps, pits and trenches within the building footprint with Class B backfill to match the surrounding slab-on-grade elevations.

3.05 PCB CAP AREAS

A. The Contractor shall protect PCB-impacted areas with concentrations greater than or equal to 10 parts-per-million (ppm) in the areas shown on Sheet C-5 of the Contract Drawings. After demolition activities and removal of the PCB protection layer, the Contractor shall carefully place 2 layers of 10 mil NRPE sheeting over the PCB Cap area(s) and secure edges of the sheeting with adhesive. The Contractor shall then place straw wattles around the perimeter of the PCB Cap and place 2-inches of processed gravel over the sheeting as shown on the Contract Drawings.

B. If the sheeting is damaged during the installation of the straw wattles and gravel, the Contractor shall immediately replace the damaged sheeting to the satisfaction of the Engineer and no additional cost to the Owner.

3.06 TEMPORARY STORAGE:

A. The Contractor shall store demolition debris in containers as described in the Asbestos Abatement Work Plan included as part of Section 02051 – Asbestos Abatement. The Owner shall have final approval over all stockpile/storage locations.

B. The storage of demolition debris near sensitive human health receptors such as public and private water supply wells or sensitive environmental receptors such as wetlands, surface water bodies, or marine environments shall be prohibited.

C. Stockpiled/stored material must be removed and disposed/recycled off-Site per this Section as soon as possible and in all cases within 90-days from the day of its initial demolition.

D. All stockpiles containing contaminated material shall be stored in a secure manner to prevent exposure to humans and the environment.

E. Containers shall be constructed of steel, in good condition and designed for the intended purpose of safe, secure storage of contaminated and hazardous materials during loading and transport. The containers shall have a secure cover that will prevent a release of material from truck during transportation. The containers shall be approved by the Engineer prior to mobilization of trucks/containers. The containers must be approved by and labeled in accordance with the U.S Department of Transportation (DOT). The containers shall be sift proof and water resistant in accordance with the DOT. The containers shall be lined with polyethylene sheeting as described in the Asbestos Abatement Work Plan included as part of Section 02051 – Asbestos Abatement.

3.07 TRANSPORT OF MATERIAL:

A. The Contractor shall not be permitted to transport demolition materials off-Site until all applicable disposal, or recycling facility documentation has been received, reviewed, and approved by the Engineer. The Contractor shall transport the demolition material under applicable shipping documentation.

B. All material removed from the Site shall be transported from the Site by licensed haulers, via designated truck routes, using appropriate vehicles, containment, and documentation. No material shall leave the Site without an associated tracking document; the form of such tracking documents shall be acceptable to the Engineer. Where the means of tracking does not have a preprinted unique alphanumeric identifier, Contractor shall assign and record a tracking number for the document prior to transport of the material from the Site. All materials leaving the Site shall become the property of Contractor.

A. Contractor shall maintain a Material Tracking Log that documents and tracks all material removed from the Site. For each load of material removed from the Site under any Section of these Specifications, whether transported to a recycle, reuse, or disposal facility, the Contractor shall record at a minimum the following information:

1. nature and description of material, including waste stream;
2. business name of licensed hauler;
3. vehicle identifier;
4. weight or quantity of material in hauler's load;
5. type of tracking document and associated document's unique alphanumeric identifier for Hazardous Waste Manifest, or other record being used to track hauler's load;
6. date of transport from the Site;
7. date of arrival at the receiving facility;
8. name and address of the receiving facility; and
9. unique number or identifier of associated receiving facility weight slip or receipt.

B. The Material Tracking Log shall be updated no less than daily, and shall be available to the Engineer for review at all times during normal work hours.

C. A copy of the complete Material Tracking Log shall be submitted to the Engineer prior to Final Completion.

D. The Contractor shall take all precaution and any actions necessary, at no additional cost to the Owner, to prevent cross-contamination from transport vehicles to areas outside the Site. The Contractor shall decontaminate equipment and vehicles as specified in Section 01570 – Environmental Protection.

E. The Contractor shall transport demolition materials from the Site to the disposal/recycling facility in accordance with all United State Department of Transportation (DOT), USEPA, VT DEC, Vermont Agency of Transportation, and applicable State and local regulations.

F. The Hauler(s) shall be licensed in all states affected by transport.

G. The Contractor shall be responsible for ensuring that free liquid is properly transported. "Wet materials" shall not be loaded for transport. The Contractor shall dewater "wet materials", and properly dispose of free liquid in accordance with local, State, and Federal regulations and at no additional cost to the Owner. The Contractor shall also dispose of any free liquids that may result during transportation in accordance with local, State, and Federal regulations and at no additional cost to the Owner.

H. Transporters shall submit proof of permit, license, or authorization to transport excavated material, when applicable, in all affected states.

I. Utilization of a Hazardous Waste Manifest shall require the use of a licensed hazardous material transporter in conformance with the VT DEC hazardous waste regulations.

3.08 WASTE PROFILES AND MANIFESTS:

A. The Contractor shall legally dispose/recycle all demolition materials as specified in this Section and all applicable Federal, State, and local regulations.

B. The Contractor shall provide certified tare and gross weight slips for each load received at the accepted facility with ORIGINAL signatures (including signatures of Owner and disposal facility's representative) and these shall be attached to each returned material shipping record, Asbestos Waste Shipment Records, or Hazardous Waste Manifest within 21 days of obtaining final signatures. The Engineer shall make progress payments after receipt of these weight slips.

C. The Contractor shall prepare and submit to the Engineer for review all waste profile applications and questionnaires, and coordinate with disposal/recycling facilities and all Federal and State Environmental Agencies.

D. The Contractor shall prepare all Hazardous Waste Manifests, Asbestos Waste Shipment Records, and material shipping records with all applicable analytical backup, notification, and control forms.

E. The Owner will be designated as generator and will sign all manifests and waste profile application or questionnaires.

F. The Contractor shall furnish all generator copies of the Asbestos Waste Shipment Records or Hazardous Waste Manifest to the Owner for submittal to the appropriate regulatory agencies and to retain for the Owner's records.

G. The Contractor shall submit to the Engineer, prior to receiving progress payment, documentation certifying that all materials were transported to, accepted, and disposed/recycled, at the selected disposal/recycling facility(ies). The documentation shall include all manifests and any other transfer documentation as applicable.

3.09 LOGS, REPORTS, AND RECORDKEEPING:

A. The Contractor shall maintain daily logs and reports covering the work to be performed for this Section of the Contract. The format shall be developed by the Contractor to include daily logs, weekly reports, and a phase out report. Contractor shall provide Engineer with copies of all logs and reports on a weekly basis in a Microsoft Excel spreadsheet format.

B. Daily Logs shall include, at a minimum, the following:

1. Date
2. Area (Site specific) of work being performed
3. Equipment being utilized by employees
4. Type of work performed
5. References to material shipping records, Asbestos Waste Shipment Records, Hazardous Waste Manifests, and waste profiles
6. Stockpile/storage locations, sample locations, and sample identifications
7. Details and documentation of demolition materials management
8. Protective clothing being worn by employees
9. Project manager signature and date

C. Weekly Reports shall include, at a minimum, the following:

A summary of the work performed during the week
Copies of the daily logs.

D. Phase Out Report shall include, at a minimum, the following:

1. Summary of work performed under this Section of the Contract
2. Copies of all material shipping records, Hazardous Waste Manifests, Asbestos Waste Shipment Records and waste profiles
3. Laboratory reports and plans indicating sample locations
4. Project Manager signature and date

END OF SECTION

SECTION 02222

UTILITY ABANDONMENT

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers the abandonment, demolition/removal, cutting/capping/plugging, termination and discontinuance of existing utilities, complete, as designated on the Contract Drawings and described herein, including: sewer, drain, water, gas, telephone, cable, and electrical utilities at the former Jones and Lamson Facility on Clinton Street (the "Site") in Springfield, Vermont.

B. The location of existing underground services and utilities shown on the Contract Drawings are based on available records. It is not warranted that all existing utilities and services are shown, nor that shown locations are correct. The Contractor shall be responsible for determining the location of existing utilities and having the utility companies locate their respective utilities on the ground prior to excavating. The Contractor shall coordinate utility termination work with the applicable utility companies to ensure services have been shutoff. Some utilities may not be shown on the Contract Drawings and, if encountered, shall be cut and capped as required by the Engineer.

C. The Contractor shall furnish all materials, tools, labor, and equipment to abandon, cut/cap/plug, terminate, and discontinue existing utilities as specified herein and shown on the Contract Drawings, including cutting/capping Asbestos Cement (AC) pipe where shown on the Contract Drawings.

D. The Contractor is advised that polychlorinated biphenyls (PCBs) are also present at the site at the levels and locations shown on Sheet C-2 of the Contract Drawings. In addition, asbestos-containing materials and miscellaneous oil & hazardous materials have been detected in the buildings. See Section 02051 – Asbestos Abatement and Section 02075 - Universal and Hazardous Waste for additional information.

E. For utility excavations, the Contractor may temporarily stockpile soils adjacent to the excavation per these Contract Documents. If the soils have evidence of contamination, as determined by the Engineer (based on field screening results, contain petroleum and/or chemical odor, an oily sheen, and/or contains material with staining or significant change in color), the soils will be handled and stockpiled on and covered with polyethylene sheeting as required by the Engineer. For backfilling requirements see Section 02300 – Earthwork. In general, soils shall be backfilled in the same area/depths from where they were excavated.

F. The Contractor shall protect the existing catch basins at the Site and along Clinton Street as shown on the Contract Drawings.

G. Fire hydrants shall at all times be left clear of obstructions and readily accessible to fire apparatus, and no material or other obstructions shall be placed within ten (10) feet of a fire hydrant. Fire alarm boxes shall be maintained so as to be readily accessible and open to view. The Contractor shall maintain service and emergency access to all fire hydrants along Clinton Street at all times. Refer to the Contract Drawings for the locations of the hydrants. The Contractor shall coordinate with the Springfield Fire Department for disconnection of building fire alarms and hydrants within the Site.

1.02 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. The Contractor shall submit a Utility Abandonment Plan to the Engineer within 14 days of the Notice to Proceed. The Utility Abandonment Plan shall include, but not be limited to the following: material specifications and shop drawings for all materials and equipment for abandoning existing utilities under this Section and the Contract Drawings; details/plan for protecting utilities to be left in place; details/plan for cutting, capping, abandoning, demolishing, and removing utilities.

B. Submit to the Engineer As-Built Documents showing locations of all utility cuts/caps/abandonment/demolition locations with Global Positioning System (GPS) coordinates (precision within ± 1-foot). The Contractor shall also indicate vertical location based on depth from existing grade. The As-Built Documents will serve as the Owner's record of utility termination locations. Utility terminations to be shown with GPS coordinates on the As-Built Documents include, but not limited to, the locations of all: cut and capped water, sewer, and drain lines; location of abandoned hydrants; and all other cut/capped utility pipes (gas, electric, telephone, cable, etc.), as applicable.

PART 2 - PRODUCTS

2.01 CAPPING MATERIALS:

A. Cast Iron/Ductile Iron Piping - Caps shall be ductile iron and mechanical jointed with individually actuated wedges of same diameter of pipe. Caps are to be "Megalug" as manufactured by EBAA Iron Sales, Inc. or approved equal. Provide concrete thrust blocks.

B. Asbestos-Cement (AC) Piping – Capping shall be done by installing a transition coupling, a ductile iron nipple and a mechanical joint cap with retainer gland. Provide concrete thrust blocks, as required. All work related to AC piping shall be conducted in accordance with Environmental Protection Agency, Occupational Safety and Health Administration, Vermont Occupational Safety and Health Administration, Vermont Agency of Transportation, National Institute of Occupational Safety and Health, Vermont Department of Environmental Conservation, and other applicable Federal, State and local regulations. Wherever there is a conflict or overlap of the above references, the most stringent provisions apply.

C. Sanitary Sewer and Drain Piping (if AC pipe, see Paragraph 2.01.B) - Concrete or masonry plugs shall be used.

D. Copper, Iron Piping - Caps or plugs shall be permanent screwed or silver soldered cap fittings. Termination materials shall be of the same materials as the pipe.

E. Hydrant Water Line - Where the water line to the hydrant is cut and capped, the Contractor shall install a transition coupling, a ductile iron nipple, a mechanical joint cap with retainer gland, and provide concrete thrust blocks.

2.02 CONCRETE AND MASONRY PLUGS:

A. Plugs installed at the open ends of the pipe to be abandoned shall be 12-inch thick 3,000-psi cement concrete. For vertical pipes to be plugged, the Contractor shall use a temporary plug below the 12-inch thick concrete plug to hold concrete in place, as required. The pipes to be abandoned are as specified herein and as shown on the Contract Drawings.

B. Cement concrete plugs that are used shall meet the requirements for 3,000 psi concrete and shall be free of cracks and spalls. Brick masonry plugs shall be made of brick meeting the requirements of ASTM C32, for grade SS, hard brick.

C. Mortar shall be composed of Portland Cement, hydrated lime, and sand, and the volume of sand shall not exceed three times the sum of the volumes of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense hard-burned brick to 1:3/4 for softer brick. In general, mortar for grade SS brick shall be mixed in the volume proportions of 1:1/2:4-1/2; Portland Cement to hydrated lime to sand. The cement concrete plug shall be covered with non-shrink grout to prevent leakage at the plug.

PART 3 - EXECUTION

3.01 GENERAL:

A. The Contractor shall determine the location of existing utilities to be abandoned from the Contract Drawings, field investigations, electronic utility detectors, coordination with applicable utility companies, DIGSAFE, and test pits, as ordered and directed by the Engineer. Test pits for the purpose of locating underground utilities in advance of abandonment/demolition work shall be excavated and backfilled by the Contractor at the direction of the Engineer. Test pits shall be backfilled in reverse sequence of soil removal, immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Engineer.

B. The Contractor shall at least 72 hours, exclusive of Saturdays Sundays and holidays, prior to excavation contact DIGSAFE before working below ground and shall maintain the DIGSAFE numbers throughout the course of the Project.

C. For utility excavations, the Contractor may temporarily stockpile clean soils adjacent to the excavation during work hours per these Contract Documents. If the soils have evidence of contamination, as determined by the Engineer (based on field screening results, contain petroleum and/or chemical odor, an oily sheen, and/or contains material with staining or significant change in color), the soils will be handled and on polyethylene sheeting and covered by polyethylene sheeting as required by the Engineer.

D. Before backfilling any underground utility termination, the Contractor shall notify the Engineer so the Engineer can inspect and photograph the termination. If the area is covered prior to inspection/approval the work shall be uncovered for inspection at the Contractor's expense. Any and all costs associated with uncovering the work and damages resulting from such uncovering are the sole responsibility of the Contractor. Immediately following the Engineer's inspection/approval, excavations for utility cutting/capping/abandonment shall be backfilled with material per the Contract Drawings, Section 02220 – Demolition and Section 02300 – Earthwork. The Contractor shall backfill excavations at the Site in accordance with Section 02300 – Earthwork.

E. The Contractor shall abandon, cut/cap/plug, terminate, and discontinue individual building utility services as designated on the Contract Drawings and described in these Specifications. The Contractor shall protect the existing catch basins and piping along Clinton Street, within the Site, and on adjacent properties as designated on the Contract Drawings.

F. All utility shut offs shall be coordinated with the Owner and applicable utility company. The Contractor shall arrange and pay any fees associated with disconnecting, removing, capping, and plugging utility services. The Contractor shall obtain written authorization from the utility companies before shutting off or terminating any utility service, including terminating water and sewer service.

G. The Contractor shall protect all utilities on Clinton Street and adjacent properties from damage and undermining during excavation and demolition activities.

H. The Contractor shall be responsible for employing proper protection techniques for all excavations.

I. The Contractor shall plug all piping, penetrations, and holes, with the exception of existing monitoring wells, in the remaining concrete floor slab and sub-slab areas (basements, sumps, trenches, etc.) as specified herein, including, but not limited to all roof drains, floor drains, and sewer piping.

3.02 UTILITY ABANDONMENT:

A. Sanitary Sewer and Drain System:

1. Existing sewers or drains shall be cut flush with the remaining floor slab and/or subgrade (basement, sumps, etc.) walls/floor and shall be plugged with a minimum

of 12 inches of 3,000 psi concrete, as shown on the Contract Drawings or as directed by the Engineer. Concrete so used shall be installed according to the manufacturer's written instructions and shall be cured properly to minimize future degradation. Such plug shall be made watertight with an application around the plug of an approved watertight compound. For non-circular pipes, the largest interior cross sectional dimension shall govern in determining size of abandonment.

2. Plugs shall be of adequate strength to withstand the full soil and groundwater pressure but not less than 5 psi. Plugs and caps shall be watertight.

3. Pipes shall have a plug installed that is flush with the interior wall of the structure.

4. AC Piping: AC piping shall be capped per Paragraph 2.01.B and as follows and all applicable regulations:

    a. Carefully excavate, by hand, a sufficient area around the material to perform the cutting/capping work. Any asbestos debris that is present or generated by these activities will be promptly wetted and placed into 6-mil asbestos waste bags before continuing with the work.

    b. Once excavation is complete, place one layer of 6-mil polyethylene sheeting on sidewalls and bottom of trench under the AC pipe to be removed.

    c. Remove AC pipe as follows: Cut material into manageable sections using HEPA-filtered saw. The Asbestos Contractor will take all necessary precautions to avoid any breakage of ACM. Cut ends of pipe will be immediately encapsulated. Cut sections of pipe will be removed from the trench and immediately wrapped and sealed in two layers of 6-mil asbestos waste bags. Packaged waste will then be placed into acceptable waste transportation vehicle. Whenever possible, the Asbestos Contractor will limit cutting of asbestos cement materials and dismantle materials in intact sections.

    d. The Contractor shall package, label, and remove all asbestos waste from the Work Area. Packaging shall be accomplished in a manner that minimizes waste volume, but insures waste containers shall not tear or break. Transportation and disposal of the containerized waste at an approved landfill shall be the responsibility of the Contractor.

B. Water Services:

1. The Contractor shall coordinate with the Springfield DPW to confirm that water service to the property has been disconnected. The Contractor shall terminate water services and water service headers as shown on the Contract Drawings. The Contractor shall locate, in the field, the water service lines/headers and

service/header valves for each building. The buildings may have more than one service/header from the water main. Where such service lines and valves are shown on the Contract Drawings, the locations are not guaranteed. The Contractor shall cut pipe and install a threaded watertight cap on the severed pipe at locations shown on the Contract Drawings.

2. Water Lines shall be cut and capped as specified herein, shown on the Contract Drawings, and required by Springfield DPW. The Contractor shall backfill excavations per Section 02300 – Earthwork. The Contractor shall repair all damaged pavement and sidewalks not designated to be removed as part of excavations to the satisfaction of the Springfield DPW at no additional cost to the Owner.

3. Where active water lines are to be capped, restrained caps with thrust blocks shall be used.

4. All fire hydrants along Clinton Street shall remain accessible and functional unless indicated otherwise on the Contract Drawings. Refer to the Contract Drawings for the location of the hydrant to be cut/capped. Hydrants to be cut/capped in accordance with all applicable local, State, and Federal regulations. The Contract shall coordinate the hydrant termination with the Springfield Fire Department. Where the water line to the hydrant is cut and capped, the Contractor shall install a transition coupling, a ductile iron nipple, a mechanical joint cap with retainer gland, and provide concrete thrust blocks.

5. Valve boxes shall be removed from all valves and curb stops which are on the abandoned main.

6. Plugs and caps shall be watertight. Metallic pipe shall be capped with caps of the same material as the pipe.

D. Electrical Service:

1. The Contractor shall arrange and coordinate with Green Mountain Power, Inc. to schedule the disconnection of the electrical utilities. Contractor shall remove all dropped wires within the Limit of Work, unless noted otherwise, and dispose of them in compliance with current local, State, and Federal Regulations. Contractor shall coordinate the cutting, capping, demolition, and removal of underground electrical piping, light poles, and manholes, as required, with Green Mountain Power, Inc. as specified herein, and as indicated on the Contract Drawings.

2. The Contractor will arrange to have the electrical services terminated at main utility poles. The Contractor shall remove and dispose of all wire and electrical appurtenances that are abandoned. The Contractor shall coordinate with the Springfield DPW and Green Mountain Power, Inc. before handling any utility poles, transformers electrical wiring, and appurtenances.

3. See temporary electrical service requirements in Special Conditions, Section 01110 – Control of Work and Materials, Section 01500 – Temporary Facilities, and the Contract Drawings.

E. Gas Service:

1. The Contractor will arrange to have Vermont Gas Systems Inc. disconnect gas service to the buildings and remove exterior gas appurtenances. Vermont Gas Systems Inc. shall remove individual gas services to the buildings. The Contractor is responsible for the protection of gas mains during the demolition work, and ensuring that the connections to the buildings have been removed and plugged at the main by Vermont Gas Systems Inc. The Contractor shall remove and dispose of all interior gas piping and appurtenances, and all appurtenances remaining outside the building. The Contractor shall also remove and dispose remaining above grade gas piping to the point where the piping turns horizontal underground.

F. Telephone and Cable:

1. The Contractor shall arrange with the telephone and cable utilities to have telephone and cable services to each building disconnected at the pole, as required. The Contractor shall remove and dispose of all abandoned wiring and appurtenances. The Contractor shall coordinate the cutting, capping, demolition, and removal of underground telephone piping and manholes with the appropriate utility company, as specified herein, and as indicated on the Contract Drawings.

END OF SECTION

SECTION 02230

CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The Contractor shall do all required clearing and grubbing as indicated on the Contract Drawings or herein specified in the area required for demolition operations within the Limit of Work, and shall remove all debris resulting therefrom. Furnish all labor, materials, tools, and equipment to remove natural and ornamental shrubbery, bushes, trees, and other plantings as shown to be removed on the Contract Drawings or specified herein.

B. Unless otherwise noted, all areas to be cleared shall not be grubbed.

C. Any trees scarred or damaged by the Contractor's equipment or operations that is not designated for removal on the Contract Drawings shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Engineer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under the provisions of this Section and Section 01570 – Environmental Protection.

D. Any trees and shrubs specifically designated by the Owner not to be cut, removed, destroyed, or trimmed shall be saved from harm and injury in accordance with Section 01570 – Environmental Protection.

E. The Contractor shall not clear and grub outside of the area required for construction operations, unless shown on the Contract Drawings or as directed by the Engineer.

PART 2 - PRODUCTS: NOT APPLICABLE

PART 3 - EXECUTION

3.01 RIGHT TO WOOD AND LOGS:

The Owner shall have the right to cut and remove logs and other wood of value in advance of the Contractor's operations. All remaining logs and other wood to be removed in the course of clearing shall become the property of the Contractor.

3.02 CLEARING:

A. Unless otherwise indicated, the Contractor shall cut or otherwise remove all shrubs, trees, saplings, brush and vines to install temporary chain link fencing, demolish the existing

buildings, and perform miscellaneous site work within the Limits of Work as shown on the Contract Drawings.

B. Unless otherwise indicated, the Contractor shall cut windfalls, logs and trees lying on the ground, dead trees and stubs above the ground surface (but not their stumps), trees which have been partially uprooted by natural or other causes (including their stumps), and other deadfall and vegetable matter such as shags, sawdust, bark, refuse, and similar materials within the Limits of Work.

C. Trees, stumps, and stubs to be cleared shall be cut as close to the ground as practicable but not more than 6-inches above the ground surface in the case of small trees, and 12-inches in the case of large trees. Saplings, brush and vines shall be cut at the ground surface.

3.03 GRUBBING:

A. Unless otherwise indicated, the Contractor shall leave all stumps and roots within the Limits of Work in place. If roots must be removed, they are to remain on site at a location agreed upon by the Owner and Engineer.

B. Any depression remaining from the removal of a stump and not filled in by backfilling shall be filled with gravel borrow and/or loam, whichever is appropriate to the proposed ground surface.

3.04 DISPOSAL:

A. All material collected in the course of the clearing and grubbing which is not to remain shall be minimized and be disposed of in a satisfactory manner away from the Site or as otherwise approved. Such disposal shall be carried on as promptly as possible and shall not be left until the final clean-up period. No stumps, trees, limbs or brush shall be buried anywhere on the Site.

END OF SECTION

SECTION 02240

DEWATERING

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section specifies designing, furnishing, installing, maintaining, operating, and removing temporary dewatering systems, including (as required) a temporary water treatment system and storage/sedimentation tanks to treat and store pumped water during this Project. Dewatering/groundwater management activities include, but not limited to: handling, treating, discharging, and or disposing any water that is pumped and discharged from the excavations and/or building sumps, trenches and pits as part of the Contractor's water handling, including water that collects on-Site during a storm event, water that collects on-Site during dust control and demolition activities, and water that is generated during bulk-loading activities. Also included under this Section: treating/disposing of pumped water, accumulated sediment/sludge, and bag filters; constructing, maintaining, observing, sampling and, except where indicated or required to remain in place, removing and cleaning of pumping equipment, treatment equipment, sedimentation tanks and instrumentation for control of the system.

B. Dewatering/groundwater management activities shall be in accordance with the Contract Documents and all applicable Federal, State and Local environmental regulations and permits. Dewatering/groundwater management activities discharging to sewer system shall conform to with Town of Springfield WWTF and NPDES requirements as specified herein and in Section 00890 – Permits. As an alternative to treating pumped water and conforming to the applicable discharge permits, the Contractor may dispose pumped water off-Site at an applicable disposal facility, as appropriate, at no extra cost to the Owner.

C. The Contractor shall perform all sampling, monitoring, and analysis of the pumped water/dewatering effluent as required by the applicable discharge permits and/or disposal facilities. The laboratory results shall be submitted to the Engineer within 2 days of receipt. Analytical data shall be summarized and tabulated on an excel spreadsheet.

D. The Contractor shall collect and treat or dispose water that is used/generated as part of dust control and bulk-loading activities as specified herein and in Section 01562 – Dust Control, Section 02220 – Demolition, and Section 02051 – Asbestos Abatement. In addition, the Contractor shall collect and treat or dispose any standing water, or water that accumulates during the course of the work, from building pits/trenches/sumps/basements (i.e. any structure below the main concrete floor slab that may accumulate water).

1.02 RELATED WORK:

A. Section 00890 – Permits
B. Section 01562 – Dust Control
C. Section 01570 – Environmental Protection

D. Section 02051 – Asbestos Abatement
E. Section 02220 - Demolition
G. Section 02222 – Utility Abandonment
H. Section 02252 – Support of Excavation
I. Section 02300 – Earthwork

1.03 SYSTEM DESCRIPTION:

A. Dewatering includes lowering the water table and intercepting seepage which would otherwise emerge from the slopes or bottom of the excavation; increasing the stability of excavated slopes; preventing loss of material from beneath the slopes or bottom of the excavation; reducing lateral loads on sheeting and bracing; improving the excavation and hauling characteristics of sandy soil; preventing rupture or heaving of the bottom of any excavation; and collecting, treating, and disposing of pumped water per the applicable discharge permits and/or disposal facilities.

B. Dewatering is defined as using conventional pumps installed in open excavations, ditches, wells, trenches, pits, basements, and/or sumps.

C. The Contractor shall remove, sample, stockpile, and dispose accumulated sediment per applicable local, State, and Federal regulations at no additional cost to the Owner.

D. The Contractor shall be responsible for the design, installation, maintenance, sampling, cleaning, and removal of all temporary water and groundwater control and treatment components, as required to conform to the applicable discharge permits and/or disposal facilities. The dewatering treatment system will be designed to ensure that concentrations of the contaminants of concern will be below pretreatment limits set forth by the applicable discharge permits. In addition, the dewatering treatment system shall be capable of pumping water to a treatment train that is equipped, at a minimum, with the following components: 5 micron filter for asbestos removal, 21,000 gallon (or greater) fractionation tank(s) for initial containment for sediment removal and temporary storage of pumped water; bag-type particulate filters; carbon filtration, and flow meter. The Contractor may be required to temporarily store pumped water (e.g. larger fractionation tank, multiple fractionation tanks), at no extra cost to the Owner, so not to exceed the maximum daily discharge to the sewer system and/or combined sewer/storm drain outfall per the Town of Springfield WWTF and NPDES requirements.

As an alternative to treating pumped water and conforming to applicable discharge permits, the Contractor may dispose pumped water off-Site at an applicable disposal facility, as appropriate, at no extra cost to the Owner.

1.04 QUALITY ASSURANCE:

A. The dewatering systems, if required, shall be capable of effectively reducing the hydrostatic pressure and lowering the groundwater levels to the excavation bottom, unless otherwise directed by the Engineer, so that the excavation bottom is firm and dry.

B. The groundwater level shall be lowered and maintained beneath the excavation depth at all times when work is in progress.

C. The dewatering system, if required, and excavation support (see Section 02252 – Support of Excavation) shall be designed so that lowering of the groundwater level within the work area does not adversely affect structures, utilities or wells outside of the work area.

D. Where special dewatering is used, the Contractor shall obtain at his expense the services of a registered Vermont Professional Engineer to investigate design and monitor the dewatering system.

E. The dewatering and treatment system, if required, for water that is pumped and discharged into the sewer system shall conform to the Town of Springfield WWTF and NPDES requirements and as specified herein and in Section 00890 – Permits.

1.05 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. The Contractor shall make all required submittals to the Town of Springfield DPW per the applicable discharge permit requirements.

B. The Contractor shall submit a Dewatering Plan to the Engineer showing all pumped water and groundwater control and treatment components to comply with the applicable permits.

C. If the Contractor is disposing pumped water off-Site at an applicable disposal facility, the Contractor shall submit to the Engineer all pertinent information relating to the transport and disposal of the water specified herein, within 14 days after issuance of the Notice to Proceed. The information submitted shall include as a minimum:

1. The Contractor shall identify each waste stream and propose appropriate disposal/recycling facilities that will accept the pumped water. The Contractor shall submit to the Engineer, approvals or letters of intent and facility information for each facility proposed, within 14 days of issuance of the Notice to Proceed. The Contractor shall submit names of three (3) facilities. For each facility, the Contractor shall submit the following information:

a. General Information

i. Facility Name
ii. Facility Address
iii. Name of Contact Person
iv. Title of Contact Person
v. Telephone Number of Contact Person
vi. Permit Number

b. The facility shall specify the volume of material that can be accepted from the Site on a weekly and a total basis.

c. The facility shall provide written confirmation that they are permitted to accept and will accept the pumped water of the general quality and quantity described by these Specifications.

d. The facility shall provide a listing of all current and valid permits, licenses, letters of approval, and other authorizations to operate that they hold, pertaining to the receipt and management of the pumped water specified in this Contract.

e. The Contractor shall submit a complete list of the disposal facility's permitted allowable contaminant levels and physical characteristic requirements for contaminated material, and list any required regulatory approvals for individual waste streams.

2. Name and address of all transporters; and

3. Name and address of any hazardous waste transporters (provide this information if any of the disposal or recycling facilities are out-of-state), plus:

a. United States Environmental Protection Agency (EPA) Identification Number and expiration date.

b. Proof of permit, license or authorization to transport hazardous waste in all affected states.

c. Proof of Insurance

4. Provide a copy of all completed shipping documents to the Engineer.

5. Contractor shall obtain all samples and pay for the analysis of such samples required by disposal/recycling facilities at no extra cost to the Owner.

6. Contractor shall provide to the Engineer copies of all volume slips measured and disposed of at the disposal/recycling facilities.

PART 2 - PRODUCTS: NOT APPLICABLE

PART 3 - EXECUTION

3.01 DEWATERING OPERATIONS:

A. All water pumped as part of this Project shall be disposed of in a manner that will not result in undue interference with other work or damage to adjacent properties, pavements and other surfaces, buildings, structures and utilities. Suitable temporary pipes shall be

provided for water that may flow along or across the Site. All disposal of pumped water shall conform to the provisions of this Section, Section 01570 - Environmental Protection, and Section 00890 – Permits.

B. Dewatering facilities shall be located where they will not interfere with utilities and demolition activities.

C. Dewatering procedures or equipment, which cause, or threaten to cause, damage to new or existing facilities shall be expeditiously modified or replaced so as to prevent further damage. The Contractor is responsible for determining the modifications or replacements to be made, which shall be completed at no additional expense to the Owner. The Contractor shall be responsible for repair of any damage caused by his operations, at no cost to the Owner.

D. The Contractor shall be responsible for complying with applicable discharge permit limits for water that is pumped and discharged into the sewer system, including all sampling. In no case shall the Contractor discharge water with contaminant concentrations in excess of the permit limits. If on-Site treatment is not implemented, then the water shall be disposed off-Site at no additional cost to the Owner.

E. The Contractor shall be responsible for complying with applicable discharge permit limits for water that is pumped and discharged into the sewer system, including all sampling. In no case shall the Contractor discharge water with contaminant concentrations in excess of the permit limits. If on-Site treatment is not implemented, then the water shall be disposed off-Site at no additional cost to the Owner.

F. Monitoring/laboratory analysis of the pumped water and treated effluent shall be performed by the Contractor in accordance with any applicable permits. Treatment of the effluent shall be adequate for discharge in accordance with pertinent permits and/or as describe in Paragraph 1.03 of this Section. At a minimum, water shall be contained, pumped through a 5 micron filter, and stored/sampled prior to discharge per Section 00890 – Permits and Section 02051 – Asbestos Abatement

G. The Contractor shall dispose of filters and asbestos containing waste or dual waste (if PCBs detected) at no additional cost to the Owner.

H. Based on sampling data, additional treatment may be required per Paragraph 1.03 of this Section to meet effluent discharge limits of the Town of Springfield Sewer WWTF and NPDES requirements.

F. The Contractor shall provide the necessary means to retain, on-Site, all water runoff generated by dust control and bulk-loading activities (see Section 01562 – Dust Control, Section 02220 – Demolition, and Section 02051 – Asbestos Abatement). The Contractor shall use extra care to minimize water flowing across Restricted Zone areas of the buildings, as shown on the Contract Drawings, due to the contaminated concrete floor slabs. The Contractor shall limit exposure to the contaminated concrete floor slab in the Restricted Zones by covering the floor slab with 2 layers of 10-mil (minimum) NRPE and

securing the edges of the NRPE to concrete slab with adhesive and/or tape as specified in Section 02220 – Demolition.

3.02 NOISE LEVEL REQUIREMENTS:

A. All primary dewatering equipment shall be electrically operated and shall run on commercial power. Standby equipment shall be independent of commercial power and shall provide dewatering upon primary pump or power failure.

B. The Contractor shall make special provisions to prevent excessive noise during dewatering operations. The Contractor, at the direction of the Engineer, shall erect temporary noise barriers if the noise level at the perimeter of the Site is determined as excessive. Refer to Section 01570 – Environmental Protection for noise control requirements.

END OF SECTION

SECTION 02252

SUPPORT OF EXCAVATION

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This section of the specification covers support of excavation methods, including, but not limited to: excavation sidewall stepping/sloping, wood and steel sheeting and bracing for support of excavations. The requirements of this section shall also apply, as appropriate, to other methods of excavation support and underpinning which the Contractor elects to use to complete the work.

B. The Contractor shall furnish and place excavation supports or step sidewalls of excavation to safely excavate the area, indicated on the Contract Drawings or requested by the Engineer.

1.02 RELATED WORK:

A. Section 02222 – Utility Abandonment
B. Section 02300 – Earthwork

1.03 QUALITY ASSURANCE:

A. This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926, and to the Vermont Department of Labor. Contractors shall be familiar with the requirements of these regulations.

B. The Contractor is responsible for the adequacy of the excavation support system. The excavation support system shall be of sufficient strength and be provided with adequate bracing to support all loads to which it will be subjected. The excavation support system shall be designed to prevent any movement of earth that would diminish the width of the excavation or damage or endanger adjacent structures.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Timber sheeting shall be sound spruce, pine, or hemlock, planed on one side and either tongue and grooved or splined. Timber sheeting shall not be less than nominal 2 inches thick.

B. Where steel sheet piling is used by the Contractor, the material shall be of such size and strength as required by the excavation support design prepared by the Contractor. Steel sheet piling may be new or used material but shall not contain splices, cutouts, patches, or other alterations which would impair its integrity or strength. Steel sheeting shall be an

approved standard section, weighing not less than 22 pounds per square foot of wall and conforming to ASTM A6 and A328.

C. Timber and steel used for bracing shall be of such size and strength as required in the excavation support design. Timber or steel used for bracing shall be new or undamaged used material which does not contain splices, cutouts, patches, or other alterations which would impair its integrity or strength.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. Work shall not be started until all materials and equipment necessary for their construction are either on the site of the work or satisfactorily available for immediate use as required.

B. The sheeting shall be securely and satisfactorily braced to withstand all pressures to which it may be subjected and be sufficiently tight to minimize lowering of the groundwater level outside the excavation, as required in Section 02240 - Dewatering.

C. The sheeting shall be driven by approved means to the design elevation. No sheeting may be left so as to create a possible hazard to safety of the public or a hindrance to traffic of any kind.

D. If boulders or very dense soils are encountered, making it impractical to drive a section to the desired depth, the section shall, as directed, be cut off.

E. The sheeting, if used, may be left in place or salvaged at the option of the Contractor. Steel or wood sheeting permanently left in place shall be cut off at a depth of not less than two feet below finish grade unless otherwise directed. Salvaged sheeting must be decontaminated prior to be removed from the site if it was utilized in areas with contaminated soil/groundwater. Decontamination details are included in Section – 01570 Environmental Protection.

F. All cut-off will become the property of the Contractor and shall be removed by him from the site.

G. Responsibility for the satisfactory construction and maintenance of the excavation support system, complete in place, shall rest with the Contractor. Any work done, including incidental construction, which is not acceptable for the intended purpose shall be either repaired or removed and reconstructed by the Contractor at his expense.

H. The Contractor shall be solely responsible for repairing all damage associated with installation, performance, and removal of the excavation support system.

END OF SECTION

SECTION 02300

EARTHWORK

PART 1 - GENERAL

1.01 WORK INCLUDED:

The Contractor shall make excavations of normal depth in earth for trenches and structures, shall backfill and compact such excavations to the extent necessary, shall furnish the necessary material and construct embankments and fills, and shall make miscellaneous earth excavations and do miscellaneous grading. In addition, after abatement and demolition activities, the Contractor shall backfill sumps, pits and trenches within the building footprint with Class B backfill to match the surrounding slab-on-grade elevations.

1.02 RELATED WORK:

A. Section 00890 - Permits
B. Section 01110 – Control of Work and Materials
C. Section 01570 – Environmental Protection
D. Section 02220 – Demolition
E. Section 02222 – Utility Abandonment
F. Section 02230 – Clearing and Grubbing
G. Section 02240 – Dewatering
H. Section 02252 – Support of Excavation

1.03 REFERENCES:

American Society for Testing and Materials (ASTM)

ASTM	C131	Test Method for Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
ASTM	C136	Method for Sieve Analysis of Fine and Coarse Aggregates.
ASTM	C330	Specification for Lightweight Aggregate for Structural Concrete.
ASTM	D1556	Test Method for Density of Soil in Place by the Sand Cone Method.
ASTM	D1557	Test Methods for Moisture-density Relations of Soils and Soil Aggregate Mixtures Using Ten-pound (10 Lb.) Hammer and Eighteen-inch (18") Drop.
ASTM	D2922	Test Methods for Density of Soil and Soil-aggregate in Place by Nuclear Methods (Shallow Depth).

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Samples of all materials proposed for the Project shall be submitted to the Engineer for review. Size of the samples shall be as approved by the Engineer.

1.05 PROTECTION OF EXISTING PROPERTY:

A. The work shall be executed in such manner as to prevent any damage to facilities that are scheduled to remain at the Site (i.e. concrete floor slab, pavement, etc.) and to adjacent property and existing improvements, such as but not limited to streets, curbs, paving, service utility lines, structures, bench marks, observation wells, and other public or private property. Protect existing improvements from damage caused by settlement, lateral movements, undermining, washout and other hazards created by earthwork operations.

B. In case of any damage or injury caused in the performance of the work, the Contractor shall, at its own expense, make good such damage or injury to the satisfaction of, and without cost to, the Owner. Existing roads, sidewalks, and curbs damaged during the project work shall be repaired or replaced to at least the condition that existed at the start of operations. The Contractor shall replace, at his own cost, existing benchmarks, observation wells, and other reference points, which are disturbed or destroyed that are located outside the limits of excavation.

C. Buried drainage structures and pipes, and observation wells, including those which project less than eighteen-inches (18") above grade, which are scheduled to remain and are subject to damage from construction equipment shall be clearly marked to indicate the hazard. Markers shall indicate limits of danger areas, by means which will be clearly visible to operators of trucks and other construction equipment, and shall be maintained at all times until completion of project.

1.06 DRAINAGE:

A. The Contractor shall provide, at its own expense, adequate drainage facilities to complete all work items in an acceptable manner. Drainage shall be done in a manner so that runoff will not adversely affect construction procedures or cause excessive disturbance of underlying natural ground or abutting properties. The Contractor also shall not create conditions that allow silt laden runoff to run onto public ways. See Section 01570 – Environmental Protection, Section 02240 – Dewatering, and the Contract Drawings for additional requirements.

1.07 FROST PROTECTION AND SNOW REMOVAL:

A. The Contractor shall, at its own expense, keep earthwork operations clear and free of accumulations of snow as required to carry out the work.

B. The Contractor shall protect the subgrade pipes from frost penetration when freezing temperatures are expected.

PART 2 - PRODUCTS

2.01 GENERAL

A. The Contractor shall reuse excavated soil during utility abandonment activities as backfill for excavations/trenches. The soils will be backfilled in the reverse sequence as they were excavated. The Contractor shall use the material referenced above to bring excavations to grade prior to placement of additional clean/backfill material brought from off-Site. See Paragraph 2.02.F of this Section for additional detail.

2.02 MATERIAL:

A. GRANULAR BORROW:

Granular borrow shall be obtained from approved sources, consisting of stone and sand reasonably free from loam, silt, clay, and organic material and shall meet the requirements of the following:

Sieve	Percent Passing
No. 4	20-100
No. 200	0-12

The maximum size of stone particles in the granular borrow shall not exceed 67 percent of the thickness of the layer being spread.

B. PAVEMENT SUBBASE:

Gravel subbase material shall be in accordance with Vermont Agency of Transportation Standard Specification 704.04 Gravel for Subbase, 704.05 Crushed Gravel for Subbase, or 704.06 Dense Graded Crushed Stone for Subbase, as applicable.

C. CRUSHED STONE:

Crushed stone shall consist of one or the other of the following material:

1. Durable crushed rock consisting of the angular fragments obtained by breaking and crushing solid or shattered natural rock, and free from a detrimental quantity of thin, flat, elongated, or other objectionable pieces. Thin stones are stones whose average width exceeds four (4) times their average thickness. Elongated stones are stones whose average length exceeds four (4) times their average width.

2. Durable crushed gravel stone obtained by artificial crushing of gravel boulders or field stone with a minimum diameter before crushing of 8 inches.

3. The crushed stone shall be reasonably free from clay, loam or deleterious material and not more than 1.0% of satisfactory material passing a No. 200 Sieve will be allowed to adhere to the crushed stone. Where crushed stone is to be used for surfacing this requirement shall be not more than 0.5% of satisfactory material passing a No. 200 Sieve.

Tabulation of Stone Sizes
Percent by Weight Passing Through

Square Opening Sieve	2"	1 1/2"	1 1/4"	3/4"	1/2"	1/4"
2 1/2"	100					
2"	90-100	100				
1 1/2"		95-100	100			
1 1/4"	25-50		85-100			
1"		35-70		100		
3/4"	0-15	0-25	10-40	90-100		
5/8"					100	
1/2"	0-15		0-8	10-50	85-100	100
3/8"				0-20	15-45	85-100
#4				0-5	0-15	20-50
#8					0-5	0-15
#16						0-5

D. SAND BORROW:

Sand borrow shall consist of material reasonably free from silt, loam, clay, or organic matter. It shall be obtained from approved sources and shall meet the following requirements:

Sieve	Percent by Weight Passing
2 inch	100
1 1/2 inch	90-100
½ inch	70-100
No. 4	60-100
No. 100	0-20
No. 200	0-8

E. PEASTONE:

1. Peastone shall be smooth, hard, naturally occurring, rounded stone meeting the following gradation requirements:

Passing 5/8 inch square sieve opening	-	100%
Passing No. 8 sieve opening	-	0%

F. BACKFILL MATERIALS:

1. The Contractor shall reuse excavated soil during utility abandonment activities as backfill for excavations/trenches. The Contractor shall use the material referenced above to bring excavations to grade prior to placement of additional clean/backfill material brought from off-Site.

2. Class B Backfill: Class B backfill shall be granular, well graded friable soil; free of rubbish, ice, snow, tree stumps, roots, clay and organic matter; with 30 percent or less passing the No. 200 sieve; no stone greater than two-third (2/3) loose lift thickness, or six inches, whichever is smaller.

3. Select Backfill: Select backfill shall be granular, well graded friable soil, free of rubbish, ice, snow, tree stumps, roots, clay and organic matter, and other deleterious or organic material; graded within the following limits:

Sieve Size	Percent Finer by Weight
3"	100
No. 10	30-95
No. 40	10-70
No. 200	0-10

G. PROCESSED GRAVEL:

1. Processed gravel shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials. The coarse aggregate shall have a percentage of wear, by the Los Angeles Abrasion Test, of not more than 50.

2. The gradation shall meet the following requirements:

Sieve Designation	Percentage Passing
3 in.	100
1 1/2 in.	70-100
1/4 in.	50-85
No. 4	30-60
No. 200	0-10

3. The approved source of bank-run gravel material shall be processed by mechanical means. The equipment for producing crushed gravel shall be of adequate size with sufficient adjustments to produce the desired materials. The processed material shall be stockpiled in such a manner to minimize segregation of particle sizes. All processed gravel shall come from approved stockpiles.

PART 3 - EXECUTION

3.01 DISTURBANCE OF EXCAVATED AND FILLED AREAS DURING CONSTRUCTION:

A. Contractor shall take the necessary steps to avoid disturbance of subgrade during excavation and filling operations, including restricting the use of certain types of construction equipment and their movement over sensitive or unstable materials, dewatering and other acceptable control measures.

B. All excavated or filled areas disturbed during construction, all loose or saturated soil, and other areas that will not meet compaction requirements as specified herein shall be removed and replaced with a minimum 12-inch layer of compacted crushed stone wrapped all around in non-woven filter fabric. Costs of removal and replacement shall be borne by the Contractor.

C. The Contractor shall place a minimum of 12-inch layer of special bedding materials and crushed stone wrapped in filter fabric over the natural underlying soil to stabilize areas which may become disturbed as a result of rain, surface water runoff or groundwater seepage pressures, all at no additional cost to the Owner. The Contractor also has the option of drying materials in-place and compacting to specified densities.

3.02 EXCAVATION:

A. GENERAL:

1. The Contractor shall reuse excavated soil during utility abandonment activities as backfill for excavations/trenches. The excavated soils will be replaced in the excavation in reverse order of their extraction. In general, soils shall be backfilled in the same area/depths from where they were excavated. Off-Site material (Class B backfill) shall be used as backfill/grading material **only** after on-Site excavated material has been reused on-Site and there is no surplus material and is approved by the Engineer. For utility excavations, the Contractor may temporarily stockpile soils adjacent to the excavation during work hours per these Contract Documents. If the soils have evidence of contamination, as determined by the Engineer (based on field screening results, contain petroleum and/or chemical odor, an oily sheen, and/or contains material with staining or significant change in color), the soils will be handled and stockpiled as required by the Engineer.

2. The Contractor shall perform all work of any nature and description required to accomplish the work as shown on the Contract Drawings and as specified.

3. Excavations, unless otherwise required by the Engineer, shall be carried out only to the depths and limits shown on the Contract Drawings. If unauthorized excavation is carried out below required subgrade and/or beyond minimum lateral limits shown on Contract Drawings, it shall be backfilled with granular/gravel borrow and compacted at the Contractor 's expense as specified below, except as otherwise indicated. Excavations shall be kept in dry and good conditions at all times, and all voids shall be filled to the satisfaction of the Engineer.

5. In paved areas, if required, the Contractor shall first saw cut pavement or concrete as specified in Paragraph 3.02 B.1 of this Specification, strip pavement/concrete and pavement/concrete subbase separately from underlying soils. All excavated materials shall be stockpiled within the Limits of Work.

6. The Contractor shall follow a construction procedure, which permits visual identification of stable natural ground. Where groundwater is encountered, the size of the open excavation shall be limited to that which can be handled by the Contractor 's chosen method of dewatering and which will allow visual observation of the bottom and backfill in the dry.

7. The Contractor shall excavate unsuitable materials to stable natural ground where encountered at proposed excavation subgrade, as directed by the Engineer. Unsuitable material includes topsoil, loam, peat, other organic materials, snow, ice, and trash. Unless specified elsewhere or otherwise directed by the Engineer, areas where unsuitable materials have been excavated to stable ground shall be backfilled and compacted with compacted special bedding materials or crushed stone wrapped all around in non-woven filter fabric.

B. TRENCHES:

1. Prior to excavation, trenches in pavement or concrete shall have the traveled way surface cut in a straight line by a concrete saw or equivalent method, to the full depth of pavement or concrete. Excavation shall only be between these cuts. Excavation support shall be provided as required to avoid undermining of pavement or concrete. Cutting operations shall not be done by ripping equipment.

2. The Contractor shall satisfy all dewatering requirements specified in Section 02240 - Dewatering, before performing trench excavations.

3. Trenches shall be excavated to such depths and widths as indicated on the Contract Drawings or as required to cut/cap utilities as specified in Section 02222 – Utility Abandonment.

4. If, in the opinion of the Engineer, the subgrade, during trench excavation, has been disturbed as a result of rain, surface water runoff or groundwater seepage pressures, the Contractor shall remove such disturbed subgrade to a minimum of 12 inches and

replace with crushed stone wrapped in filter fabric. Cost of removal and replacement shall be borne by the Contractor.

C. EXCAVATION NEAR EXISTING STRUCTURES:

1. Attention is directed to the fact that there may be pipes, manholes, drains, and other utilities in certain locations and the concrete floor slab is to remain as indicated on the Contract Drawings. An attempt has been made to locate all utilities on the Contract Drawings, but the completeness or accuracy of the given information is not guaranteed.

2. As the excavation approaches pipes, conduits, or other underground structures, digging by machinery shall be discontinued and excavation shall be done by means of hand tools, as required. Such manual excavation, when incidental to normal excavation, shall be included in the work to be done under payment items involving normal excavation.

3. Where determination of the exact location of a pipe or other underground structure is necessary for properly performing the work, the Contractor shall excavate test pits, or implement other suitable methods, to determine the locations as ordered and directed by the Engineer.

3.03 BACKFILL PLACEMENT AND COMPACTION:

A. GENERAL:

1. Prior to backfilling, the Contractor shall compact the exposed natural subgrade to the densities as specified herein.

2. After approval of subgrade by the Engineer, the Contractor shall backfill areas to required contours and elevations with specified materials.

3. The Contractor shall place and compact materials to the specified density in continuous horizontal layers. The degree of compaction shall be based on maximum dry density as determined by ASTM Test D1557, Method C. The minimum degree of compaction for fill placed shall be as follows:

Location	Percent of Maximum Density
Below pipe centerline	95
Above pipe centerline	92
Below pavement (upper 3 ft.)	95
Embankments	95
Below pipe in embankments	95

Adjacent to structures	92
Below structures	95
All other areas	92

The maximum lift thickness shall be 12 inches.

4. The Engineer reserves the right to test backfill for conformance to the Specifications and Contractor shall assist as required to obtain the information. Compaction testing will be performed by the Engineer or by an inspection laboratory designated by the Engineer, engaged, and paid for by the Owner. If test results indicate work does not conform to specification requirements, the Contractor shall remove or correct the defective work by recompacting where appropriate or replacing as necessary and approved by the Engineer, to bring the working into compliance, at no additional cost to the Owner. All backfilled materials under structures and buildings shall be field tested for compliance with the requirements of Section 3.03.A of this specification.

5. Where horizontal layers meet a rising slope, the Contractor shall key each layer by benching into the slope.

6. The Contractor shall remove loam and topsoil, loose vegetation, stumps, large roots, etc., from areas upon which embankments will be built or areas where material will be placed for grading. The subgrade shall be shaped as indicated on the Contract Drawings and shall be prepared by forking, furrowing, or plowing so that the first layer of the fill material placed on the subgrade will be well bonded to the subgrade.

7. After abatement and demolition activities, the Contractor shall backfill sumps, pits and trenches within the building footprint with Class B backfill to match the surrounding slab-on-grade elevations.

B. BACKFILLING ADJACENT TO STRUCTURES:

1. The Contractor shall not place backfill against or on structures until they have attained sufficient strength to support the loads to which they will be subjected. Excavated material approved by the Engineer may be used in backfilling around structures. Backfill material shall be thoroughly compacted to meet the requirements listed in Paragraph 3.03 A.3.of this specification.

2. Contractor shall use extra care when compacting adjacent to pipes and drainage structures. Backfill and compaction shall proceed along sides of drainage structures so that the difference in top of fill level on any side of the structure shall not exceed two-feet (2') at any stage of construction.

3. Where backfill is to be placed on only one side of a structural wall, only hand-operated roller or plate compactors shall be used within a lateral distance of five-feet (5') of the wall for walls less than fifteen-feet (15') high and within ten-feet (10') of the wall for walls more than fifteen-feet (15') high.

C. BACKFILLING TRENCHES:

1. As soon as practicable after pipes have been disconnected and plugged, backfilling shall be started.

2. Utility abandonments are not anticipated in Clinton Street. If required, the Contractor shall backfill excavations in Clinton Street per Town of Springfield DPW and Vermont Agency of Transportation standards. Select backfill shall be placed in 6-inch thick lifts up to a minimum level of 12-inches above the top of remaining pipe in any excavations in Clinton Street. This area of backfill is considered the zone around the pipe and shall be thoroughly compacted before the remainder of the trench is backfilled. Compaction of each lift in the zone around the pipe shall be done by use of power-driven tampers weighing at least 20 pounds or by vibratory compactors. Care shall be taken that material close to the bank, as well as in all other portions of the trench, is thoroughly compacted to densities required.

   Backfill material and placement in Clinton Street shall be as required by the Vermont Agency of Transportation Standard Specifications for Construction. Wherever there is a conflict or overlap with these Contract Documents or the Vermont Agency of Transportation Standard Specifications, the Vermont Agency of Transportation Standard Specifications will apply.

3. In shoulders of streets and road, the top 12-inch layer of trench backfill shall consist of the subbase specified in Paragraph 2.02 of this Section and as required by the Vermont Agency of Transportation Standard Specifications for Construction.

4. Class B backfill shall be placed in 12-inch thick lifts (maximum) to the specified material at grade (loam, pavement subbase, etc.). Fill compaction shall meet the density requirements of this specification. Care shall be taken that material close to the bank, as well as in all other portions of the trench, is thoroughly compacted to densities required.

5. If the materials above the trench bottom are unsuitable for backfill, as determined by the Engineer, the Contractor shall furnish and place backfill materials meeting the requirements for trench backfill. Unsuitable material shall be stockpiled on polyethylene sheeting and covered by polyethylene sheeting as specified herein.

3.04 DISPOSAL OF SURPLUS MATERIALS:

A. Demolition material, including brick and concrete, shall be handled as specified in Section 02220 – Demolition and Section 02051 – Asbestos Abatement. No demolition material shall be removed from the Site or disposed/recycled by the Contractor unless approved by the Engineer.

B. No excavated material shall be removed from the Site or disposed of by the Contractor unless approved by the Engineer.

END OF SECTION

SECTION 02821

CHAIN LINK FENCE

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. The Contractor shall provide all labor, materials and appurtenances necessary for the installation of a complete chain link fence systems with mesh fabric and swing gates, as shown on the Contract Drawings and specified herein. In addition, the Contractor shall install "PCB Caution" signs, as shown on Sheet D-1 of the Contract Drawings and specified herein.

B. The Contractor shall be responsible for securing the Site from trespassers. The Contractor shall repair damaged fencing to secure the Site.

1.02 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

A. Six sets of manufacturers literature of the materials specified herein shall be submitted to the Engineer for review.

B. Six sets of shop drawings of the temporary chain link fence and gates shall be submitted to the Engineers for review.

1. Shop drawings shall indicate layout of fencing, location and size of gates, existing pavement and roads, and other site specific conditions. Prepare drawing after site observation and verification of existing conditions.

2. Shop drawings shall include information for the mesh fabric/wind screens specified herein.

3. Prior to "PCB Caution" sign fabrication, the Contractor shall submit a draft template of the project sign to the Engineer for approval of the layout and wording.

PART 2 - PRODUCTS-GALVANIZED

2.01 CHAIN LINK FENCING

A. Unless otherwise indicated, type of chain link fencing shall be Contractor's option. Following types are acceptable:

1. New materials or previously used salvaged chain link fencing in good condition.

2. Posts: Galvanized steel pipe of diameter to provide rigidity. Post shall be suitable for setting in concrete footings, driving into ground, anchoring with base plates, and

inserting in precast concrete blocks.

3. Fabric: Woven galvanized steel wire mesh. Provide in continuous lengths to be wire tied to fence posts or prefabricated into modular pipe-framed fence panels.

4. Height: 6-foot high chain link fencing with mesh fabric where shown on the Contract Drawings.

5. Mesh Fabric/Wind Screens: The 6-foot chain link fence scheduled, as shown on the Contract Drawings, shall have a mesh fabric such as a wind screen/privacy screen to shield demolition activities from the adjacent properties. The mesh fabric shall be a durable fabric mesh of 50 percent porosity and shall be weather resistant. The mesh fabric shall fasten securely to the 6-foot chain link fence and completely cover the fence. The mesh fabric shall be dark green in color or otherwise approved by the Engineer.

B. Swing Gates: Provide two (2) swing gates with mesh fabric specified in Paragraph 2.01.A.5 of this Section and shown on the Contract Drawings. At a minimum, the swing gates shall include the following:

1. Fabricate of same material as used for fencing, including mesh fabric.

2. Minimum width: 20 feet to allow access for emergency vehicles.

3. Capable of manual operation by one person.

4. Gate keepers and gate catches to secure gate in place when closed.

2.02 PCB CAUTION SIGNS

A. The PCB warning signs shall be as shown on Sheet D-1 of the Contract Drawings. The signs shall be 6” x 6” and shall be weather resistant

PART 3 - EXECUTION

3.01 INSTALLATION

A. The fence and gates shall be erected by skilled mechanics in accordance with the recommendations of the manufacturer and these specifications. These specifications shall take precedence over the recommendations of the manufacturer if any discrepancy exists between them.

B. Posts

1. Maximum post spacing shall be 10-feet. Post spacing shall be uniform and posts shall be plumb.

2. Drive posts as shown on the Detail Sheets of the Contract Drawings. Posts shall be

securely installed to support fence and mesh fabric/windscreens.

3. For soft and unstable ground conditions, cast concrete plug around post.

4. Posts over pavement: Use steel post plates or precast concrete blocks.

5. Gate posts: Use bracing or concrete footings to provide rigidity for accommodating size of gate.

6. Temporary terminal posts shall be securely installed to prevent Site access/trespassing.

C. Securely attach wire fabric to posts. Maximum area of unbraced fence fabric shall not exceed 1,500 square feet.

D. Install with required hardware.

E. Fabric shall be stretched taut, with the bottom edge following the existing grade, and shall be a continuous mesh between terminal posts. Each span of fabric shall be attached independently at terminal posts. Where terminal posts do not have provisions for weaving fabric to posts, stretcher bars shall be placed through the end weave of the fabric and secured to the post with bar bands spaced not more than 15-inches apart on the post.

F. Fabric shall be attached with ties to line posts at intervals of not more than 14-inches (and to the top railing and braces at intervals not exceeding 24-inches).

G. The bottom tension wire shall be interlaced in the weave of the fabric, pulled taut and fastened to terminal posts.

3.02 MAINTENANCE

A. Maintain fencing in good condition. If damaged, immediately repair.

3.03 PCB CAUTION SIGNS:

A. The PCB warning signs shall be fabricated and erected by the Contractor. The Contractor shall erect signs every 40 linear feet and at a minimum on each side/length of fencing shown on the Contract Drawings. The signs will be installed outside of the chain link and mesh fabric with metal ties so they are completely visible. The Contractor shall adequately support the signs at a height and location determined by the Engineer in the field.

END OF SECTION

SECTION 03302

FIELD CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED:

A. This Section covers concrete and all related items necessary to place and finish the concrete work.

1.02 RELATED WORK:

A. Section 02222 – Utility Abandonment
B. Section 02300 – Earthwork
C. Section 02821 – Chain Link Fence

1.03 REFERENCES:

A. The following standards form a part of this specification:

American Concrete Institute (ACI)

ACI 304	Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
ACI 305	Recommended Practice for Hot Weather Concreting
ACI 306	Recommended Practice for Cold Weather Concreting
ACI SP-66 ACI	Detailing Manual
ACI 318	Building Code Requirements for Reinforced Concrete

American Society for Testing and Materials (ASTM)

ASTM A615	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM C33	Concrete Aggregates
ASTM C94	Ready-Mixed Concrete
ASTM C143	Test for Slump of Portland Cement Concrete
ASTM C150	Portland Cement

ASTM C260 Air Entraining Admixtures for Concrete

ASTM C494 Chemical Admixtures for Concrete

1.04 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Six copies of the statement of materials constituting the design of mixes for each size aggregate as required by ASTM C94 shall be submitted to the Engineer within one week following award of the Contract.

PART 2 - PRODUCTS

2.01 CONCRETE:

A. All concrete, reinforced or non-reinforced shall have a 28 day compressive strength of 3000 psi unless otherwise noted on the design drawings. A minimum of 5.5 sacks of cement per cubic yard and a maximum water cement ratio of 6.9 gallons per sack shall be used.

B. Concrete shall conform to ASTM C94. The Contractor shall be responsible for the design of the concrete mixtures. Slump shall be a maximum of 4-inches and a minimum of 2-inches, determined in accordance with ASTM C143.

C. Admixtures shall be as specified in subsection 2.05. No additional admixtures shall be used unless approved by the Engineer.

D. No additional water, except for the amount indicated by the design mix shall be added to the concrete without the prior permission of the Engineer.

2.02 CEMENT:

The cement shall be an approved brand of American manufactured Portland Cement, Type II conforming to the applicable requirements of ASTM C150.

2.03 AGGREGATES

A. Except as otherwise noted, aggregate shall conform to the requirements of ASTM C33.

B. Maximum size aggregate shall be 3/4-inch.

2.04 ADMIXTURES:

A. All concrete (unless otherwise directed) shall contain an air entraining agent. Air entrained concrete shall have air content by volume of 4 to 8 percent for 3/4-inch aggregate.

B. Air entraining agent shall be in accordance with ASTM C260 and shall be Darex AEA, as manufactured by W.R. Grace & Company; Placewel (air entraining Type), as manufactured by Johns Manville; Sika AER as manufactured by Sika Chemical Company; or an approved equal product.

C. Water reducing agent shall be WRDA, as manufactured by W.R Grace & Company; Placewel (non-air entraining Type), as manufactured by Johns Manville; Sika Plastiment as manufactured by Sika Chemical Company; or an approved equal product.

D. Water reducing agent-retarder shall be "Daratard," as manufactured by W.R. Grace & Company; Sika Plastiment as manufactured by Sika Chemical Company; or an approved equal product.

2.05 WATER:

A. Water for concrete shall be potable, free of deleterious amounts of oil, acid, alkali, organic matter and other deleterious substances.

PART 3 - EXECUTION

3.01 PREPARATION:

A. Before placing concrete, forms and the space to be occupied by the concrete shall be thoroughly cleaned, and reinforcing steel and embedded metal shall be free from dirt, oil, mill scale, loose rust, paint or the material which would tend to reduce the bond.

B. Earth, concrete, masonry, or other water permeable material against which concrete is to be placed shall be thoroughly saturated with water immediately before concrete is placed.

C. No concrete shall be placed until the consolidation of the ground and the arrangement and details of forms and reinforcing have been inspected and approved by the Engineer.

3.02 FILL CONCRETE:

A. Fill concrete shall be placed in those locations as indicated on the design drawings. Fill concrete shall consist of materials as previously specified, with a minimum 28-day compressive strength of 3000 psi.

B. Before fill concrete is placed, the following procedures shall be used to prepare surfaces; all dirt, scum and laitance shall be removed by chipping and washing. The clean, roughened base surface shall be saturated with water, but shall have no free water on the surface. A coat of 1:2 cement-sand grout, approximately 1/8-inch thick, shall be well scrubbed into the thoroughly dampened concrete base. The concrete fill shall be placed immediately, before grout has dried or set.

C. Fill concrete shall be brought to lines and grades as shown on the design drawings.

3.03 CONCRETE PLACING DURING COLD WEATHER:

A. Concrete shall not be placed on frozen ground, and no frozen material or material containing ice shall be used. Materials for concrete shall be heated when temperature is below 40°F, or is expected to fall to below 40°F, within 73 hours, and the concrete after placing shall be protected by covering, heat, or both.

B. All details of Contractor's handling and protecting of concrete during freezing weather shall be subject to the approval and direction of the Engineer. All procedures shall be in accordance with provisions of ACI 306.

3.04 CONCRETE PLACING DURING HOT WEATHER:

A. Concrete just placed shall be protected from the direct rays of the sun and the forms and reinforcement just prior to placing, shall be sprinkled with cold water. The Contractor shall make every effort to minimize delays, which will result in excessive mixing of the concrete after arrival on the job.

B. During periods of excessively hot weather (90°F or above), ingredients in the concrete shall be cooled insofar as possible and cold mixing water shall be used to maintain the temperature of the concrete at permissible levels all in accordance with the provisions of ACI 305. Any concrete with a temperature above 90°F, when ready for placement, will not be acceptable, and will be rejected.

3.05 FIELD QUALITY CONTROL:

A. Concrete inspection and testing shall be performed by the Engineer or by an inspection laboratory, designated by the Engineer, engaged and paid for by the Owner. Testing equipment shall be supplied by the laboratory, and the preparation of samples and all testing shall be performed by the laboratory personnel. Full assistance and cooperation, concrete for samples, and such auxiliary personnel and equipment as needed shall be provided by the Contractor.

B. At least 4 standard compression test cylinders shall be made and tested and 1 slump test from each day's placement of concrete. A minimum of four compression test cylinders shall be made and tested for each 100 cubic yards of each type and design strength of concrete placed. One cylinder shall be tested at 7 days, and two at 28 days. The fourth cylinder from each set shall be kept until the 28 day test report on the second and third cylinders in the same set has been received. If the average compressive strength of the two 28 day cylinders do not achieve the required level, the Engineer may elect to test the fourth cylinder immediately or test it after 56 days. If job experience indicates additional cylinder tests or other tests are required for proper control or determination of concrete quality, such tests shall be made.

C. The Engineer shall have the right to reject concrete represented by low strength tests. Rejected concrete shall be promptly removed and replaced with concrete conforming to the

specification. The decision of the Engineer as to whether substandard concrete is to be accepted or rejected shall be final.

END OF SECTION

SECTION 13282

LEAD CONTAINING PAINT HANDLING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Attention is directed to the BIDDING AND CONTRACT REQUIREMENTS and all Sections within DIVISION I - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

B. Related Sections

1. Division 2 – Asbestos Abatement Work Plan for Demolition of Structurally Unsound Former Jones & Lamson Facility

2. Division 2 – Section 02051 Asbestos Abatement

3. Division 2 – Section 02075 Universal and Hazardous Waste

4. Division 2 – Section 02220 Demolition

C. Related Information

1. Regulated Building Material Survey Report, Former Jones & Lamson Facility, 160 Clinton Street, Springfield, Vermont dated June 15, 2016, prepared by ATC Group Services (formerly Environmental Compliance Services, Inc.).

2. Structural Engineering Observations and Recommendations for Environmental Sampling and Testing report dated May 20, 2016, prepared by Heritage Engineering.

3. Structural Observations, Jones & Lamson Building, report dated June 20, 2013, prepared by Heritage Engineering.

1.02 DESCRIPTION OF THE WORK

A. The Contractor shall provide labor, materials, and equipment to complete the work specified in this Section including, but not limited to, the handling and lawful disposal of Lead Containing Paint. Generally, the management of these materials shall include, but not be limited to:

1. File all necessary notices, obtain all permits and licenses, and pay all governmental taxes, fees, and other costs in connection with the work.

Obtain all necessary approvals of all governmental departments having jurisdiction.

2. Perform all sampling and testing required to properly profile the material for waste disposal. This shall also include all testing required by the disposal or recycling facility. This will include TCLP testing at a minimum.

3. All costs for the testing shall be borne by the Contractor.

4. Comply with the Contractor's submitted Health and Safety Plan.

B. The following data table (Table 1) detail analytical results of materials sampled:

TABLE 1
LEAD ANALYSIS RESULTS
JONES AND LAMSON
SPRINGFIELD, VERMONT

Field ID	Description	Location and Substrate	Result (% Weight)	Reporting Limit (RL)
Pb-1	Exterior Yellow Paint	Wood Window Casing	22	0.01
Pb-2	Exterior Yellow Paint	Concrete Window Casing	28	0.019
Pb-3	Interior Black Paint	Elevator Metal Door	3.3	0.022
Pb-4	Interior Gray Paint	Room B1 Wall	0.98	0.019
Pb-5	Interior White Paint	Room B8 Ceiling	0.008	0.026
Pb-6	Interior Purple Paint	Room 26 Wall	<RL	0.032
Pb-7	Interior Blue Paint	Boiler House Brick Wall	0.34	0.0087
Pb-8	Exterior Red Paint	Collapsed Bldg. Wood Siding	20	0.022
Pb-9	Interior Gray Paint	Boiler House Metal Boiler	0.41	0.017
Pb-10	Interior White Paint	Boiler House Brick Wall	<RL	0.019
Pb-11	Interior Green Paint	Room 53 Steel I-Beam	0.64	0.015
Pb-12	Interior Yellow Paint	Room 53 Brick Wall	0.23	0.028
Pb-13	Interior Green Paint	Room 17 Block Wall	0.2	0.016

Notes:
· Total Lead Analysis in Paint Using SW846-7420/3051

1.03 SCHEDULING AND SEQUENCING

A. The proposed Work may be performed in more than one phase.

B. The Contractor and the Designer shall develop a materials handling schedule for each phase of the work. The Owner may chose to alter the work sequence as they see fit.

C. The Contractor shall update the schedule and submit any schedule changes for review by the Designer and Owner as needed.

1.04 LOCATION OF WORK

A. The Contractor is responsible to investigate all areas for the presence of all materials. The Contractor shall determine quantities of materials for bidding purposes.

B. Handling, containerizing, packaging, re-handling, hauling and disposal of all items identified are to be included in the lump sum bid item of the Contract.

1.05 REFERENCES

A. The Contractor is advised to thoroughly review the documents referenced in this Section. Strict adherence to the hazardous materials, noise, air and water pollution regulations and requirements is required.

1. Code of Federal Regulations

a. 29 CFR 1910, “Occupational Safety and Health Standards” (General Industry Standards)

b. 29 CFR 1910.20, “Access to Employee Exposure and Medical Records

c. 29 CFR 1910.134, “Respiratory Protection”

d. 29 CFR 1910.146 “Permit Required Confined Space”

e. 29 CFR 1910.1025 “Lead”

f. 29 CFR 1910.1200, “Hazard Communication”

g. 29 CFR 1926, “Safety and Health Regulations for Construction” (Construction Industry Standards)

h. 29 CFR 1926.62, “Lead-Construction”

i. 40 CFR 50, “National Primary and Secondary Ambient Air Quality Standards”

j. 40 CFR 60, “Standards of Performance for New Stationary Sources,” Appendix B, “Test Methods”

k. 40 CFR 117, “Determination of Reportable Quantities for Hazardous Substances”

l. 40 CFR 122, “EPA Administered Permit Program: The National Pollutant Discharge Elimination System”

m. 40 CFR 172, “Hazardous Waste Transportation”

n. 40 CFR 261, “Identification and Listing of Hazardous Waste”

o. 40 CFR 262, “Standards Applicable to Generators of Hazardous Waste”

p. 40 CFR 263, “Standards Applicable to Transporters of Hazardous Waste”

q. 40 CFR 268, “Land Disposal Restrictions”

r. 40 CFR 300, “National Oil and Hazardous Substances Pollution Contingency Plan”

s. 40 CFR 302, “Designation, Reportable Quantities, and Notification”

t. USEPA’s Renovation, Repair and Painting Final Rule (RRP) (40 CFR 745)

2. Occupational Safety and Health Administration OSHA Booklet 3126 “Working with Lead in the Construction Industry”

3. National Institute for Occupational Health and Safety

a. NIOSH Method 7082, “Lead”

4. American Society for Testing and Materials

a. ASTM D3335, “Test Method for Low Concentration for Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy”

5. EPA (Environmental Protection Agency) Publications

a. SW-846, “Test Methods for Evaluating Solid Waste – Physical/Chemical Methods”

b. EPA Method 3050, “Acid Digestion of Sediments, Sludges, and Soils”

6. Steel Structures Painting Council

a. SSPC Guide 61 (CON) Guide for Containing Debris Generated During Paint Handling Operations

b. SSPC Guide 71 (DIS) Guide for the Disposal of Lead Contaminated Surface Preparation Debris

7. Vermont Department of Health

a. Vermont Regulations for Lead Control (VSA Title 18, Chapter 38)

1.06 SUBMITTALS

A. The Contractor shall submit a Waste Management Plan. The Plan shall include identification of the proposed waste hauler and disposal facility with copies of all applicable licenses, registrations and approvals.

B. The Contractor shall provide Owner with all required documentation relating to the proper handling and disposal of any hazardous or regulated waste that leaves the site in accordance with the Waste Management Plan.

C. After completion of the hazardous materials handling, provide a final report documenting handling, transportation and disposal activities. The document shall include copies of manifests, shipping slips, permits, and licenses for this Project.

1.07 QUALITY ASSURANCE

A. Examination of Existing Conditions: The Contractor shall examine the Contract Drawings for material identification, handling, and disposal requirements and provisions for new work.

B. Hazardous Waste Handling and Transportation Firm Qualifications: An experienced firm that has specialized in hazardous waste work similar in material and extent to that indicated for this Project.

C. Regulatory Requirements: Comply with governing EPA and DEP notification regulations before beginning handling of any hazardous waste materials. Comply with hauling and disposal regulations of authorities having jurisdiction.

PART 2 – MATERIALS

2.01 PROTECTIVE EQUIPMENT

A. Provide health and safety equipment required to protect workers and to comply with the Health and Safety Plan.

2.02 DISPOSAL BAGS

A. Disposal Bags: Provide 6 mil (0.15 mm) thick leak-tight polyethylene bags.

2.03 DRUMS

A. DOT Hazardous Waste Disposal Drums: Provide DOT 17-H Open -Top Drums *(55* gallon) in accordance with DOT regulations title 49 CFR Parts 173, 178, and 179.

2.04 LABELS

A. DOT Hazardous Waste Labels: in accordance with DOT regulations, Title 49 CFR parts 173, 178, and 179.

PART 3 – EXECUTION

3.01 GENERAL WORK AREA SET UP

A. Signage: Prior to the preparation for work that will disturb regulated materials; the Contractor shall place warning signs immediately outside all entrances and exits to the area.

B. Access to Work Areas: The Contractor shall allow only authorized personnel into the work area. Barrier tape shall be used to limit access to the exterior work area.

3.02 GENERAL HAZARDOUS WASTE MANAGEMENT

A. Do not mix potentially hazardous waste streams. Where feasible, separate each type of hazardous waste from other types of hazardous wastes, from painted/coated waste and from construction waste.

B. Segregate, package, label, transport and dispose of Hazardous Waste in accordance with DOT, EPA, State and Local regulations.

3.03 HAZARDOUS WASTE PACKAGING AND LABELING

A. Package Hazardous Waste Type C in specified containers as follows:

1. Waste Type C to be packaged in DOT 17-H Open-Top Drums. Fill to capacity only with Waste Type C (do not mix waste stream types). Install gasket on lid, apply lock ring, and seal. Apply Hazardous Waste Label to drum side. Enter DOT Shipping Data as follows: RQ Hazardous Waste Solid, NOS, 9, NA3 077, PG-III, (~D009). Adjacent to each label, enter the date indicating when waste was first placed in each drum.

B. Maintain all containers in a continuously sealed condition after they have been filled. Do not reopen sealed containers or place additional waste in previously sealed containers.

3.04 LEAD-CONTAINING AND OTHER METALS PAINT

A. Lead-containing and other metals paint is present on various surfaces throughout the Site. The Contractor shall assume that all painted surfaces and paint chip debris contains lead-containing and other metals paint. Any of the Contractor activities that may generate dust or impact a leaded or other metals surface shall be responsible for regulating his work area so that dust migration is contained properly within the regulated area. Once the work is complete, the Contractor shall be responsible for the proper clean up and disposal of leaded or other metals dust and materials.

B. All lead based and other metals paint work must be reflected in the lump sum bid of this contract.

C. Contractor shall handle and lawful disposal of Lead-based and other metals paint from areas as indicated in the drawings/plans. Clean up and drum materials utilizing wet methods and negative air filtration.

D. Work Areas Affected - In general, the following activities are minimum requirements of this Section and affect the demolition performed on the painted components:

1. No torch cutting, mechanical sanding or stripping or abrasive methods shall occur on painted surfaces without the use of HEPA vacuum attachments.

2. No demolition activities may occur that increase the workers' exposure above applicable Action Levels. The contractor is responsible for compliance with the following OSHA Construction Regulations: Cadmium in Construction Regulation 1926.1127, Chromium in Construction Regulation 1926.1126, and Lead in Construction Regulation 1926.62 when abrasive blasting, welding, cutting, burning on structures,

manual scraping or sanding, and manual demolition of structures or any other activity that may produce an exposure above the action level for any of the identified metals. The work practices described in the following sections are intended to adequately protect the workers from exposure to metal hazards, provide a safe workplace, and protect the environment.

3. Workers shall be informed of the components to be demolished that have been identified as containing lead and other metals.

4. Worker protection, at a minimum, shall comply with the above Standards and Worker Right to Know and Health and Safety Standards of 1926.62 shall also apply to the work of this Section.

5. Separation of Trades: Unprotected, untrained workers or trades shall not perform any related work within the same vicinity as demolition involving components identified as containing lead and other metals.

6. Cleanup Activities: The Contractor shall maintain the demolition work zones free of accumulated debris and materials containing lead and other metals.

E. Disposal of Lead and other metals contaminated material.

1. The Contractor must comply fully with SSPC – Guide 71 (DIS) as well as all current regulations concerning the testing, handling, hauling, labeling, and disposal of all paint waste generated during this project.

a. At a minimum, the Contractor shall collect and submit samples for Toxicity Characteristic Leaching Procedure (TCLP) Method 1311 in accordance with Appendix II of 40 CFR 261 to a Vermont Licensed Analytical Laboratory. The Contractor shall collect at least one sample from each media scheduled for disposal.

b. All painted or coated building components shall be disposed of off-site.

c. Lead and other materials that exceed the TCLP criteria shall be disposed in accordance with applicable hazardous waste regulations.

3.05 TRANSPORTATION, DISPOSAL AND/OR RECYCLING OF WASTES

A. Continuously maintain custody of all hazardous material generated at the work site. Provide security, short-term storage, transportation and disposition until custody is transferred to an approved properly permitted disposal site or recycling center. Document continuous chain-of custody.

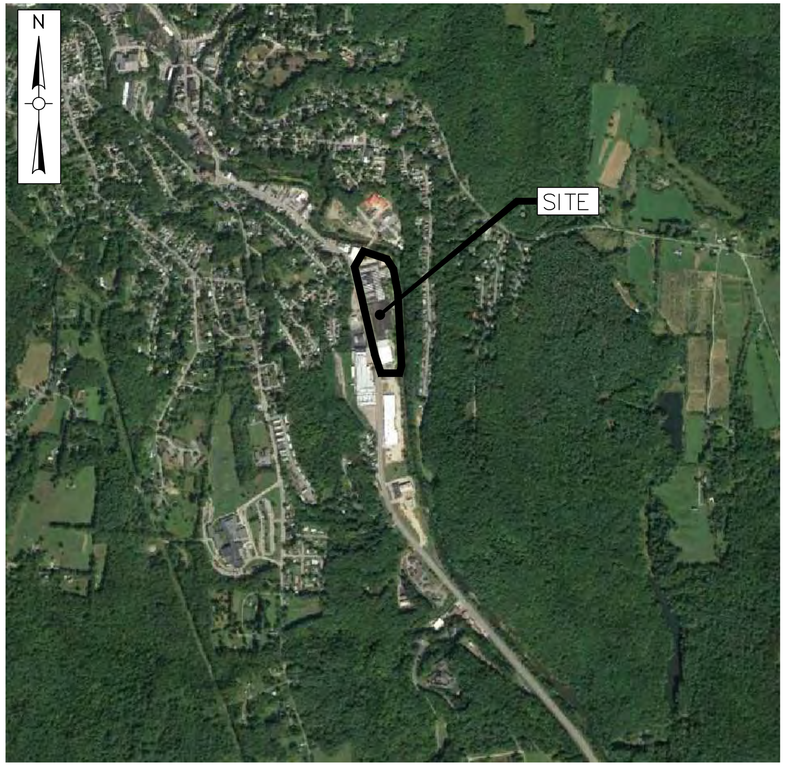
B. Do not remove, or cause to be handled, hazardous waste from the Owner's property without a legally executed Uniform Hazardous Waste manifest.

C. At completion of hauling and disposal of each load submit copy of waste manifest, chain of custody form, and landfill receipt to the Designer.

D. Recycling and Recovery: Where accessible, turn over waste that contains materials for which recovery and/or recycling is possible to an approved recycling center. Materials subject to recycling include:

1. Metal components

END OF SECTION



LOCATION PLAN

APPROXIMATE SCALE: 1" = 1000'

DRAWING INDEX

SHEET	TITLE
G-1	ABBREVIATIONS, NOTES AND LEGEND
C-1	EXISTING CONDITIONS PLAN
C-2	EXISTING CONDITIONS PLAN-PCB IMPACTED AREAS
C-3	MISCELLANEOUS SITE WORK AND DEMOLITION PHASING PLAN
C-4	BUILDING DEMOLITION PLAN
C-5	PCB CAPPING PLAN
D-1	DETAILS I
D-2	DETAILS II
D-3	DETAILS III

SPRINGFIELD REGIONAL DEVELOPMENT CORPORATION

SPRINGFIELD, VERMONT

ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET SPRINGFIELD, VERMONT

160 CLINTON STREET
TOWN OF SPRINGFIELD, VERMONT

SMS# 77-0122

DECEMBER 2016

STATE OF VERMONT
KENNETH J. BISCEGLIO
No. 8922
Environmental
LICENSED
PROFESSIONAL ENGINEER

12/30/16

Weston & Sampson℠

P.O. BOX 189, Waterbury, VT 05676

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SANITARY SEWER	S	8"S PVC
FORCE MAIN	FM	4"FM DI
WATER MAIN	W	W
TEMPORARY WATER		W
STORM DRAIN	D	D
GAS	G	G
ELECTRIC	E	E
TELEPHONE	T	T
OVERHEAD UTILITY	OU	
FLOOR DRAIN / ROOF DRAIN		
GRINDER PUMP		GP
SANITARY SEWER MANHOLE		SMH
STORM DRAIN MANHOLE		SDMH
ELECTRICAL MANHOLE		EMH
TELEPHONE MANHOLE		TMH
AIR RELEASE VALVE MANHOLE		ARMH
FORCE MAIN CLEANOUT MANHOLE		FMCO
CLEANOUT		CO
CATCH BASIN		CB
CATCH BASIN (CURB INLET)		
HYDRANT		
TEMPORARY HYDRANT		
GATE VALVE	WV	
CHECK VALVE		
CURB STOP		
BUTTERFLY VALVE		
BALL VALVE		
REDUCER		
CAP OR PLUG		
GAS GATE VALVE	GV	
UTILITY POLE		
GUY POLE		
LIGHT POST		
EDGE OF PAVEMENT		
EDGE OF UNPAVED ROAD		
CURB		
SIDEWALK		
RAILROAD		
STONE WALL		
RETAINING WALL	RET WALL	RET WALL
FENCE	x x	x x
INDIVIDUAL DECIDUOUS TREE		
INDIVIDUAL EVERGREEN TREE		
TREE LINE		
SURVEY MARKER		
PROPERTY LINE	PL	
EASEMENT LINE		
LIMIT OF WORK		
APPROXIMATE LOCATION OF SILT FENCE		
SPOT ELEVATIONS	x 141.5	x 141.5
CONTOUR LINES	56	56
DEPRESSION CONTOUR LINES		
HOUSE NUMBER	#35	
FLOOR ELEVATION	FL=56.7	
SILL ELEVATION	S=56.7	
WETLAND		
WETLAND FLAGS		1 2
RIP RAP		
STATE HIGHWAY STATION		
SURFACE MOUNTED DELINEATOR		
GUARD POST		
BOLLARD	B	B
SIGN		
BENCH MARK		
AUGER	A-1	A-1
PERCOLATION TEST	PT 1	PT-1
TEST PIT	TP 1	TP-1
BORING	B-10	B-11
PROBE	P-10	P-11
GROUNDWATER MONITORING WELL	WS-1	WS-1
GAS MONITORING WELL	GMW-10	GMW-10
GAS VENT	GV	GV
HAY BALES		
ROCK OUTCROP		
DRAINAGE DITCH / SWALE		

NOTE: ITEMS SHOWN IN THE LEGEND MAY NOT BE PRESENT IN THESE PLANS

ABBREVIATIONS

AC	ASBESTOS CEMENT PIPE
ACM	ASBESTOS CONTAINING MATERIAL
ACCMP	ASPHALT COATED CORRUGATED METAL PIPE
ARV	AIR RELEASE VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BC	BITUMINOUS CONCRETE
BIT	BITUMINOUS
BLDG	BUILDING
BM	BENCH MARK
BO	BLOW OFF
BV	BUTTERFLY VALVE
CATV	CABLE TELEVISION
CB	CATCH BASIN
CC	CONCRETE CURB
CI	CAST IRON
℄	CENTERLINE
CL	CEMENT LINED
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CU FT	CUBIC FEET
CY	CUBIC YARD
D	STORM DRAIN, DEPTH FROM RIM TO INVERT
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DMH	DRAIN MANHOLE
DWG	DRAWING
E	EAST, ELECTRIC
EA	EACH
EF	EACH FACE
EHH	ELECTRIC HANDHOLE
ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EW	EACH WAY
EXIST	EXISTING
FLG	FLANGE
FT	FEET, FOOT
G	NATURAL GAS
GALV	GALVANIZED
GC	GRANITE CURB
GR	GRANITE
HC	HOUSE CONNECTION
HORIZ	HORIZONTAL
HP	HIGH PRESSURE
HYD	FIRE HYDRANT
I	INVERT
INV	INVERT
ID	INSIDE DIAMETER
IP	IRON PIPE
LB	POUND
LF	LINEAR FEET
LS	LUMP SUM
MAX	MAXIMUM
MB	MAIL BOX
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
N	NORTH
NE	NORTH EAST
NW	NORTH WEST
NF	NOT FOUND
NO OR #	NUMBER
OD	OUTSIDE DIAMETER
OU	OVERHEAD UTILITY
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PE	PLAIN END, POLYETHYLENE
ℙ	PROPERTY LINE
PL	PLATE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT-OF-WAY
RT	RADIO TOWER
RQD	ROCK QUALITY DESIGNATION
S	SEWER, SOUTH, SILL ELEVATION
SE	SOUTH EAST
SECT	SECTION
SF	SQUARE FEET
SHT	SHEET
SPEC	SPECIFICATIONS
SPS	SEWAGE PUMP STATION
SQ FT	SQUARE FEET
SS	SEWER SERVICE, STAINLESS STEEL
STA	STATION
STL	STEEL
SW	SIDEWALK, SOUTH WEST
T	HYDROSTATIC THRUST, TELEPHONE
TBM	TEMPORARY BENCH MARK
THK	THICK (NESS)
TP	TEST PIT
TYP	TYPICAL
UP	UTILITY POLE
VC	VITRIFIED CLAY
VERT	VERTICAL
W	WATER, WEST
W/	WITH
W/O	WITHOUT

CONSTRUCTION NOTES:

1. EXISTING UTILITY AND PROPERTY LINE INFORMATION, TOPOGRAPHIC INFORMATION, EDGE OF PAVEMENT, UTILITY POLE LOCATIONS, AND LOCATIONS OF EXISTING ABOVE GROUND STRUCTURES WERE TAKEN FROM PLANS PREPARED BY ALDRICH & ELLIOT WATER RESOURCE ENGINEERS, HERITAGE ENGINEERING, AND STONE ENVIRONMENTAL, INC.
2.
3. THE CONTRACTOR SHALL CALL DIGSAFE AT 1-888-344-7233 AT LEAST 72 HOURS, SATURDAYS, SUNDAYS, AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE DIGSAFE PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE ENGINEER PRIOR TO EXCAVATION.
4. LOCATIONS OF EXISTING PIPES, CONDUITS, UTILITIES, FOUNDATIONS AND OTHER UNDERGROUND OBJECTS ARE COMPILED FROM EXISTING RECORDS AND AVAILABLE INFORMATION AND ARE NOT WARRANTED TO BE CORRECT AND THE CONTRACTOR SHALL HAVE NO CLAIM ON THAT ACCOUNT SHOULD THEY BE OTHER THAN SHOWN. CONTRACTOR SHALL CONTACT DIGSAFE, APPROPRIATE AGENCIES/UTILITY COMPANIES, AND PERFORM TEST PITTING AS DESCRIBED IN THE SPECIFICATIONS TO LOCATE THESE ITEMS.
5. CONTRACTOR SHALL VISIT AND EXAMINE THE SITE TO FULLY UNDERSTAND ALL THE CONDITIONS PERTAINING TO THE WORK, UNDERSTAND DIFFICULTIES TO BE ENCOUNTERED, UNDERSTAND THE SCOPE OF THE ABATEMENT AND DEMOLITION WORK FOR ALL SYSTEMS WHETHER SHOWN OR DESCRIBED AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR TO VERIFY ALL DIMENSIONS, CLEARANCE ELEVATIONS, SITE FEATURES/ANCILLARY ITEMS, SERVICES, SIZES OF EXISTING PIPES AND BUILDINGS, INCLUDING DIMENSIONS, AND MISCELLANEOUS MATERIALS WITHIN THE BUILDINGS. A TOUR OF THE PROJECT SITE WILL BE OFFERED IMMEDIATELY FOLLOWING PRE-BID CONFERENCE, AT THE DATE AND TIME INDICATED IN THE REQUEST FOR BIDS. ATTENDANCE AT THE PRE-BID CONFERENCE AND SITE TOUR IS MANDATORY. THE OWNER AND ENGINEER ARE NOT RESPONSIBLE FOR CONTRACTOR HEALTH AND SAFETY DURING SITE TOUR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE HEALTH AND SAFETY OF THEIR EMPLOYEES.
6. ALL STRUCTURES, SHALL BE REMOVED TO THE SLAB-ON-GRADE FLOOR AND RECYCLED/DISPOSED OF AS DETAILED IN THE CONTRACT DOCUMENTS, UNLESS OTHERWISE INDICATED BY THE ENGINEER.
7. ALL WORK UNDER THIS CONTRACT SHALL BE LIMITED TO THE "LIMIT OF WORK" BOUNDARY SHOWN ON CONTRACT DRAWINGS WITH THE EXCEPTION OF CATCH BASIN PROTECTION, TRAFFIC MANAGEMENT WITH SIGNAGE AND UTILITY TERMINATIONS AS DESCRIBED IN SPECIFICATION SECTION 02222-DEMOLITION AND SHOWN ON SHEET C-4.
8. THE CONTRACTOR SHALL DEMOLISH BUILDINGS TO THE SLAB-ON-GRADE FLOORING AS SHOWN ON SHEET C-4. DEMOLITION MATERIAL SHALL IMMEDIATELY BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF PER SPECIFICATION SECTIONS 02220-DEMOLITION AND 02051-ASBESTOS ABATEMENT, AND IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS UNLESS OTHERWISE REQUIRED BY THE ENGINEER.
9. ALL PAVED AREAS, CURBING, AND SIDEWALKS DISTURBED BY THE CONTRACTOR BEYOND THE LIMITS OF WORK, INCLUDING PLACEMENT OF CATCH BASIN PROTECTION CONTROLS, SIGNAGE, AND UTILITY TERMINATIONS SHALL BE RESTORED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
10. THE CONTRACTOR SHALL CONDUCT ALL DEMOLITION/ABATEMENT ACTIVITY BETWEEN 7:00 A.M. AND 5:00 P.M., MONDAY THROUGH FRIDAY, UNLESS APPROVED BY THE OWNER.
11. ABANDON/DISCONNECT/REMOVE ALL UTILITIES AS DETAILED ON SHEET C-4 AND THE SPECIFICATIONS, UNLESS OTHERWISE INDICATED BY THE ENGINEER.
12. THE CONTRACTOR SHALL PROVIDE WATER TRUCKS OR COORDINATE WITH THE TOWN OF SPRINGFIELD DEPARTMENT OF PUBLIC WORKS (DPW) AND SPRINGFIELD FIRE DEPARTMENT FOR USE OF NEARBY HYDRANT AS WATER SERVICE FOR DEMOLITION ACTIVITIES. CONTRACTOR SHALL PROVIDE BACKFLOW PREVENTION, METER, AND PAYMENT IN ACCORDANCE WITH DPW REQUIREMENTS PRIOR TO CONNECTION AND USE OF THE MUNICIPAL WATER SYSTEM, AT NO ADDITIONAL COST TO THE OWNER.
13. ALL STREET EXCAVATIONS SHALL BE PROTECTED AT THE END OF EACH WORKING DAY BY BACKFILLING OR USING STEEL PLATING.
14. ALL SOLID WASTE AND HAZARDOUS WASTE SHALL BE MANAGED IN ACCORDANCE WITH ALL APPLICABLE STATE AND FEDERAL REGULATIONS.
15. MISCELLANEOUS DISCREPANCIES OR OMISSIONS THAT MAY OR MAY NOT APPEAR ON THE PLANS OR SPECIFICATIONS WILL NOT RELIEVE THE CONTRACTOR FROM CODE COMPLIANCE.
16. THE CONTRACTOR SHALL KEEP THE SITE ENTRANCES AND EXITS, AS SHOWN ON THE CONTRACT DRAWINGS, OPEN, ACCESSIBLE, AND FREE OF DEBRIS, MATERIAL AND/OR EQUIPMENT AT ALL TIMES DURING THE PROJECT. ACCESS MUST BE AVAILABLE TO THE OWNER AND TOWN OF SPRINGFIELD POLICE AND FIRE DEPARTMENTS AT ALL TIMES.
17. CONTRACTOR SHALL PROVIDE CHAIN LINK FENCING PER SPECIFICATION SECTION 02821 AND AS SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL PROVIDE 6-FOOT HIGH FENCING WITH MESH FABRIC AROUND THE SITE TO PREVENT SITE ACCESS/TRESPASSING, AS SHOWN ON SHEET C-3. SEE SPECIFICATION SECTION 02821 FOR CHAIN LINK FENCE AND MESH REQUIREMENTS. FENCING SHALL INCLUDE TWO SWING GATES WITH MESH FABRIC AT THE SITE ENTRANCE/EXITS AS SHOWN ON SHEET C-3. ACCESS MUST BE AVAILABLE TO OWNER AND TOWN OF SPRINGFIELD POLICE AND FIRE DEPARTMENTS AT ALL TIMES. CONTRACTOR SHALL COORDINATE GATE LOCKING WITH FIRE AND POLICE DEPARTMENTS, AND SHALL PROVIDE KEYS AS NECESSARY. CONTRACTOR SHALL MAINTAIN CHAIN LINK FENCING AND GATES THROUGHOUT THE DURATION OF PROJECT AND REPAIR DAMAGED FENCING/GATES. FENCING, GATES, AND MESH FABRIC TO REMAIN AT THE SITE AFTER THE PROJECT IS COMPLETE.
18. REFER TO SPECIFICATIONS SECTION 02051 ASBESTOS ABATEMENT, 02075 UNIVERSAL AND HAZARDOUS WASTE, 13282 LEAD-BASED COATINGS REMOVAL FOR THE SPECIFIC SCOPE OF WORK RELATED TO ASBESTOS ABATEMENT, UNIVERSAL AND HAZARDOUS WASTE, AND LEAD BASED COATINGS REMOVAL. THE CONTRACTOR SHALL ALSO REMOVE ALL BUILDING CONTENTS INCLUDING, BUT NOT LIMITED TO: CONTAINERS, PIPING, MANUFACTURING EQUIPMENT, SUPPORT BEAMS, HVAC SYSTEMS, AND MISCELLANEOUS DEBRIS AS SHOWN ON THE CONTRACT DRAWINGS AND INDICATED IN SPECIFICATION SECTION 02220.
19. CONTRACTOR SHALL UTILIZE ONLY AREAS WITHIN THE LIMITS OF WORK FOR EMPLOYEE PARKING, VEHICLE AND EQUIPMENT STORAGE, AND TEMPORARY MATERIAL/DEBRIS STOCKPILES AND DEMOLITION MATERIAL SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02220-DEMOLITION.
20. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE RELATED DUST CONTROL, PER SPECIFICATION SECTION 01562-DUST CONTROL.
21. ALL MATERIAL HAULING VEHICLES SHALL BE COMPLETELY COVERED PRIOR TO LEAVING THE SITE.
22. CONTRACTOR SHALL BE RESPONSIBLE FOR ASBESTOS/PCB DECONTAMINATION OF ALL CONSTRUCTION VEHICLES PRIOR TO ENTERING EXISTING STREETS AND ROADWAYS PER SPECIFICATION SECTION 01570. THE CONTRACTOR SHALL ENSURE THAT MATERIAL HAULING VEHICLES REMAIN ON PAVED SURFACES AS MUCH AS POSSIBLE.
23. FOR RESULTS OF THE COMPREHENSIVE SITE SURVEY FOR ASBESTOS CONTAINING MATERIALS SEE SPECIFICATION SECTION 02051 ASBESTOS ABATEMENT.
24. FOR RESULTS OF THE COMPREHENSIVE SITE SURVEY FOR PCB- AND DEHP- CONTAINING LIGHT BALLASTS AND FLUORESCENT LIGHT/MERCURY CONTAINING VAPOR LAMP BULBS SEE SPECIFICATION SECTION 02075 UNIVERSAL AND HAZARDOUS WASTE.
25. CONTRACTOR TO FACILITATE OPERATIONS IN A MANNER SO AS TO MAINTAIN SAFE UNINTERRUPTED ACCESS TO ADJACENT PROPERTIES.
26. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN EROSION AND SEDIMENT CONTROLS (IE STRAW WATTLES/HAYBALES, SILT FENCING, CATCH BASIN INLET PROTECTION) FOR THE DURATION OF THE PROJECT. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE FURNISHED, INSTALLED, MAINTAINED, AND REPLACED BY THE CONTRACTOR AS NEEDED TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT LEAVE THE LIMITS OF WORK. SEE SPECIFICATION SECTION 01570.
27. THE CONTRACTOR IS REQUIRED TO CONDUCT ALL WORK IN ACCORDANCE WITH THE TOWN OF SPRINGFIELD NOISE ORDINANCES AND AS DESCRIBED IN SPECIFICATION SECTION 01570.
28. TRUCK STAGING AND TRUCK ACCESS TO THE SITE WILL BE LIMITED TO ROADWAYS AND TIMES AGREED TO BY THE TOWN OF SPRINGFIELD AND AS DETAILED IN THE SPECIFICATIONS. THE CONTRACTOR WILL BE REQUIRED TO COORDINATE ALL TRUCK TRAFFIC WITH THE TOWN OF SPRINGFIELD POLICE DEPARTMENT.
29. THE CONTRACTOR SHALL SUPPLY THE ENGINEER AND OWNER WITH AS-BUILT DRAWINGS PER SPECIFICATION SECTION 01770-PROJECT CLOSEOUT. THE AS-BUILT DRAWINGS SHALL INCLUDE THE LIMITS OF CHAIN LINK FENCE, PCB CAPPING AREAS, UTILITY TERMINATION LOCATIONS, AND ALL STRUCTURES LEFT IN PLACE OR INSTALLED.
30. STANDING WATER WITHIN THE BUILDINGS AND WATER THAT COLLECTS ON-SITE DURING A STORM EVENT SHALL BE HANDLED/TREATED IN ACCORDANCE WITH SPECIFICATION SECTION 01570-ENVIRONMENTAL PROTECTION AND SECTION 02240-DEWATERING.
31. THIS PROJECT WILL OCCUR ON A VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION SITE WITH TRACKING NUMBER SMS #77-0122.
32. UPON ISSUANCE OF NOTICE TO PROCEED, THE CONTRACTOR SHALL IMMEDIATELY CONTACT ALL UTILITY COMPANIES TO ESTABLISH AND PAY FOR SERVICES FOR THE PROJECT PER SPECIFICATION SECTION 00890-PERMITS AND 01500-TEMPORARY FACILITIES. THE CONTRACTOR MUST PAY AND BE BILLED DIRECTLY FROM UTILITY COMPANIES UNTIL FINAL ACCEPTANCE OF PROJECT.
33. THE CONTRACTOR SHALL CLEAR AND GRUB ONLY THOSE AREAS WITHIN 10-FEET OF THE BUILDING, OR AS REQUIRED FOR DEMOLITION. SEE SPECIFICATION SECTION 01570-ENVIRONMENTAL PROTECTION AND 02230-CLEARING AND GRUBBING.
34. IN ACCORDANCE WITH THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S (EPA'S) PRINCIPLES FOR GREENER CLEANUPS, THE CONTRACTOR SHALL MINIMIZE WASTE GENERATION AND RECYCLE BUILDING MATERIALS (IE. STEEL, CLEAN CONCRETE AND BRICK, ETC.) IN ACCORDANCE WITH SPECIFICATION SECTIONS 02220-DEMOLITION AND 02051-ASBESTOS ABATEMENT AS APPLICABLE.

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No.	Date	Description	Dr.By	Ck.By	App.By
A	12/30/16	PROVED			

STATE OF VERMONT KENNETH P. BISSEGGER No. 8922 Environmental PROFESSIONAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER

DATE 12/30/16

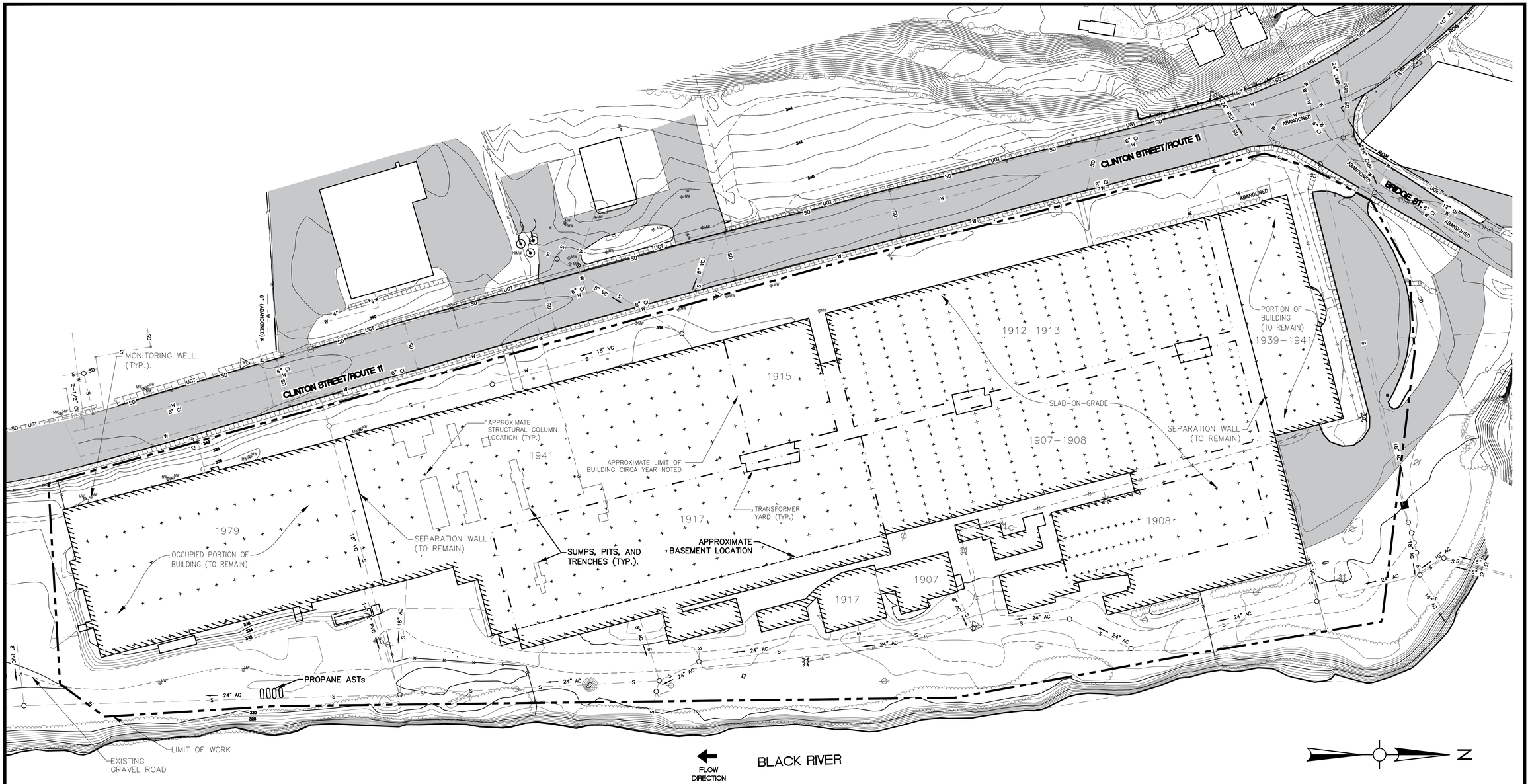
SPRINGFIELD, VERMONT
SPRINGFIELD REGIONAL DEVELOPMENT CORPORATION
ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

ABBREVIATIONS, NOTES AND LEGEND

CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR.BY	DSN.BY	CHK.BY	APP.BY
-	-	-	2160317	PML		PVU	KJB

FILE NO. G-1

SHEET 2 OF 10



LEGEND:

- LIMIT OF WORK
- EXISTING BUILDINGS
- EXISTING PAVEMENT

NOTES:

1. ALL SITE FEATURES ARE APPROXIMATE AND CONTRACTOR SHALL VERIFY IN THE FIELD.

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No.	Date	Dr.By	Ck.By	App.By	Description
A	P	P	R	O	V E D

12/30/16
DATE

REGISTERED PROFESSIONAL ENGINEER

STATE OF VERMONT — KENNETH J. BISSEGARD — No. 8922 Environmental — LICENSED PROFESSIONAL ENGINEER

TOWN OF SPRINGFIELD, VERMONT
SPRINGFIELD REGIONAL DEVELOPMENT CORPORATION
ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

EXISTING CONDITIONS

CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR. BY	DSN. BY	CHK. BY	APP. BY
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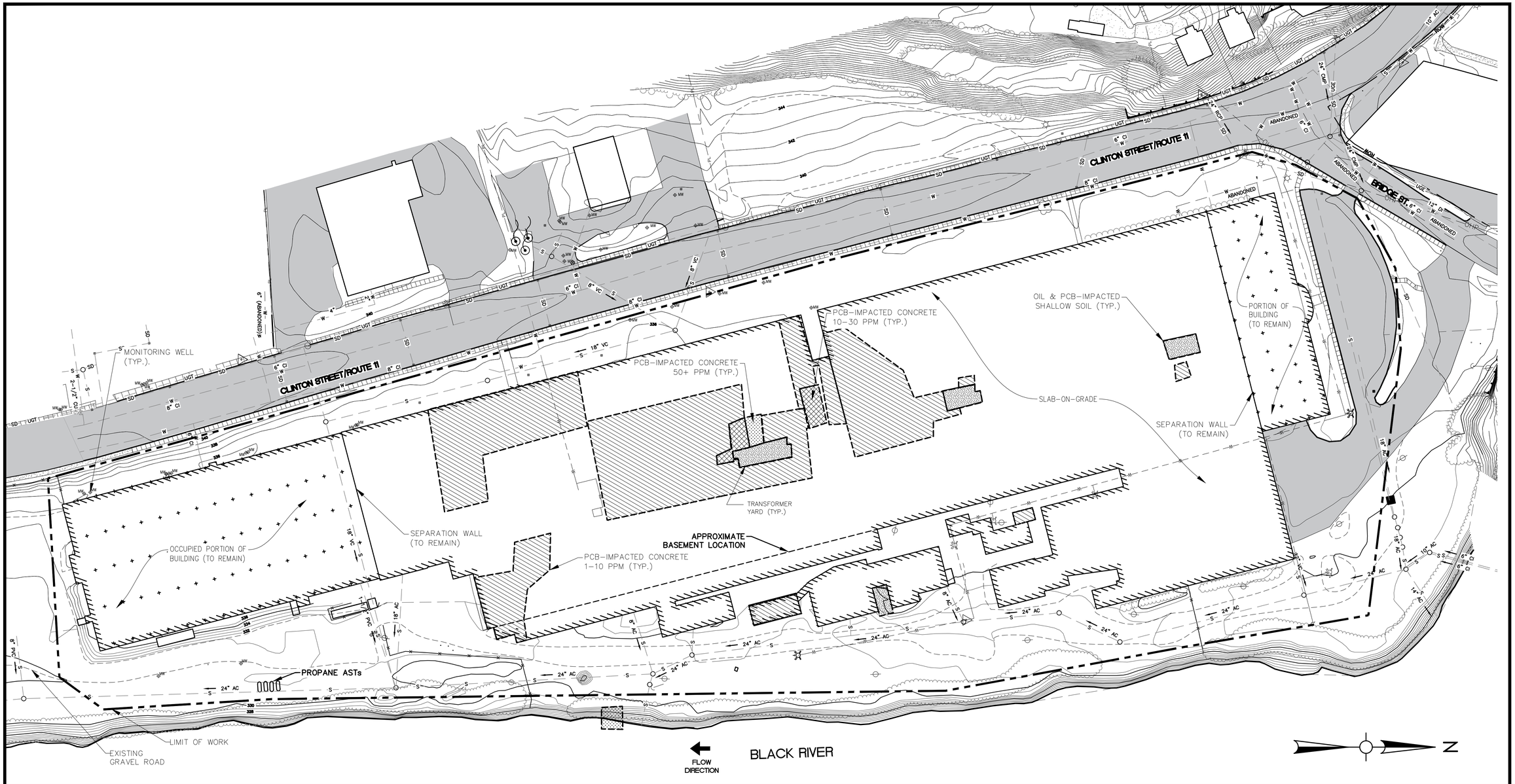
C-1

FILE NO. -



LEGEND:

- LIMIT OF WORK
- EXISTING BUILDINGS
- PCB-IMPACTED CONCRETE
- EXISTING PAVEMENT
- PCB IMPACTED CONCRETE 1-10 PPM
- PCB IMPACTED CONCRETE 10-30 PPM
- PCB IMPACTED CONCRETE 50+ PPM
- OIL & PCB IMPACTED SHALLOW SOIL

NOTES:

1. THIS PLAN IDENTIFIES PCB-IMPACTED AREAS WITHIN THE BUILDINGS AND SOME PCB-IMPACTED SHALLOW SOIL AREAS WITHIN THE BUILDING AND SURROUNDING AREA. PCB-IMPACTED CONCRETE AND SOILS SHALL BE REMEDIATED UNDER THE NEXT PHASE (BY OTHERS). THE CONTRACTOR SHALL USE CAUTION ON THE EASTERN SIDE OF THE SITE BETWEEN THE BUILDINGS AND THE BLACK RIVER DUE TO PCB-IMPACTED SOILS. THE CONTRACTOR SHALL CONSTRUCT A TEMPORARY DRIVEWAY AS SHOWN ON SHEET C-3 TO LIMIT WORKER AND VEHICLE CONTACT WITH THE SOIL. THE CONTRACTOR SHALL INSTALL STAKES AND CAUTION TAPE AROUND THE PCB-IMPACTED SOIL AREAS SHOWN ON THIS DRAWING AND AVOID DISTURBING THE PCB-IMPACTED SOILS. THE CONTRACTOR SHALL LIMIT OPERATIONS TO THE BUILDING FLOOR SLAB AND TEMPORARY DRIVEWAY AS MUCH AS POSSIBLE. IF THE CONTRACTOR MUST CROSS PCB-IMPACTED SOIL AREAS TO PERFORM WORK, THE CONTRACTOR SHALL INSTALL A LAYER OF GEOTEXTILE FABRIC AND 4-INCHES OF CRUSHED STONE OVER THE IMPACTED AREAS, AT NO ADDITIONAL COST TO THE OWNER. STOCKPILE AND EQUIPMENT STORAGE LOCATIONS MUST BE APPROVED BY THE ENGINEER.
2.
3. BUILDINGS ARE CONCRETE SLAB ON GRADE WITH PARTIAL BASEMENT AS SHOWN ON THIS DRAWING. FOR BUILDING INFORMATION AND DESCRIPTION SEE SPECIFICATION SECTIONS 01014-SCOPE AND SEQUENCE OF WORK AND 02220-DEMOLITION. SEE THE CD PROVIDED IN APPENDIX A OF THE CONTRACT DOCUMENTS FOR ADDITIONAL SITE INFORMATION, HISTORICAL BUILDING PLANS AND SITE PHOTOS.
4. LOCATIONS OF EXISTING PIPES, CONDUITS, UTILITIES, FOUNDATIONS, AND OTHER UNDERGROUND OBJECTS ARE COMPILED FROM EXISTING RECORDS AND AVAILABLE INFORMATION PROVIDED BY BOTH PUBLIC AND PRIVATE AGENCIES AND ARE NOT WARRANTED TO BE CORRECT AND THE CONTRACTOR SHALL HAVE NO CLAIM ON THEIR ACCOUNT SHOULD THEY BE OTHER THAN SHOWN. CONTRACTOR SHALL CONTACT DIGSAFE AND APPROPRIATE AGENCIES/UTILITY COMPANIES TO LOCATE THESE ITEMS. CONTRACTOR SHALL PERFORM TEST PITTING AS DESCRIBED IN THE SPECIFICATIONS.
5. CONTRACTOR TO VERIFY QUANTITY, SIZE, DIMENSIONS, AND MATERIALS AT THE PRE-BID CONFERENCE/SITE TOUR. SEE SPECIFICATION SECTION 02220 AND APPENDIX A-SITE PHOTOGRAPHS AND EXISTING PLANS IN THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
6. MONITORING WELLS SHOULD BE VERIFIED AND PROTECTED DURING DEMOLITION. CONTRACTOR SHALL PROTECT ALL MONITORING WELLS AND REPAIR/REPLACE ANY DAMAGED DURING DEMOLITION. THE CONTRACTOR SHALL INSTALL STAKES AND CAUTION TAPE AROUND MONITORING WELLS PRIOR TO TEMPORARY DRIVEWAY CONSTRUCTION TO HELP PROTECT THE WELLS.

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SCALE: 1"=50'

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No.	Date	Description	Dr.By	Ck.By	App.By
A	12/30/16	DATE			

REGISTERED PROFESSIONAL ENGINEER

STATE OF VERMONT — KENNETH J. BISSONNETTE — No. 8922 — Environmental Engineer — PROFESSIONAL ENGINEER

TOWN OF SPRINGFIELD, VERMONT
SPRINGFIELD REGIONAL DEVELOPMENT CORPORATION
ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

EXISTING CONDITIONS PLAN-PCB IMPACTED AREAS

CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR BY	DSN BY	CHK BY	APP BY
-	1:50	-	2160317	PML	-	PVJ	KJB

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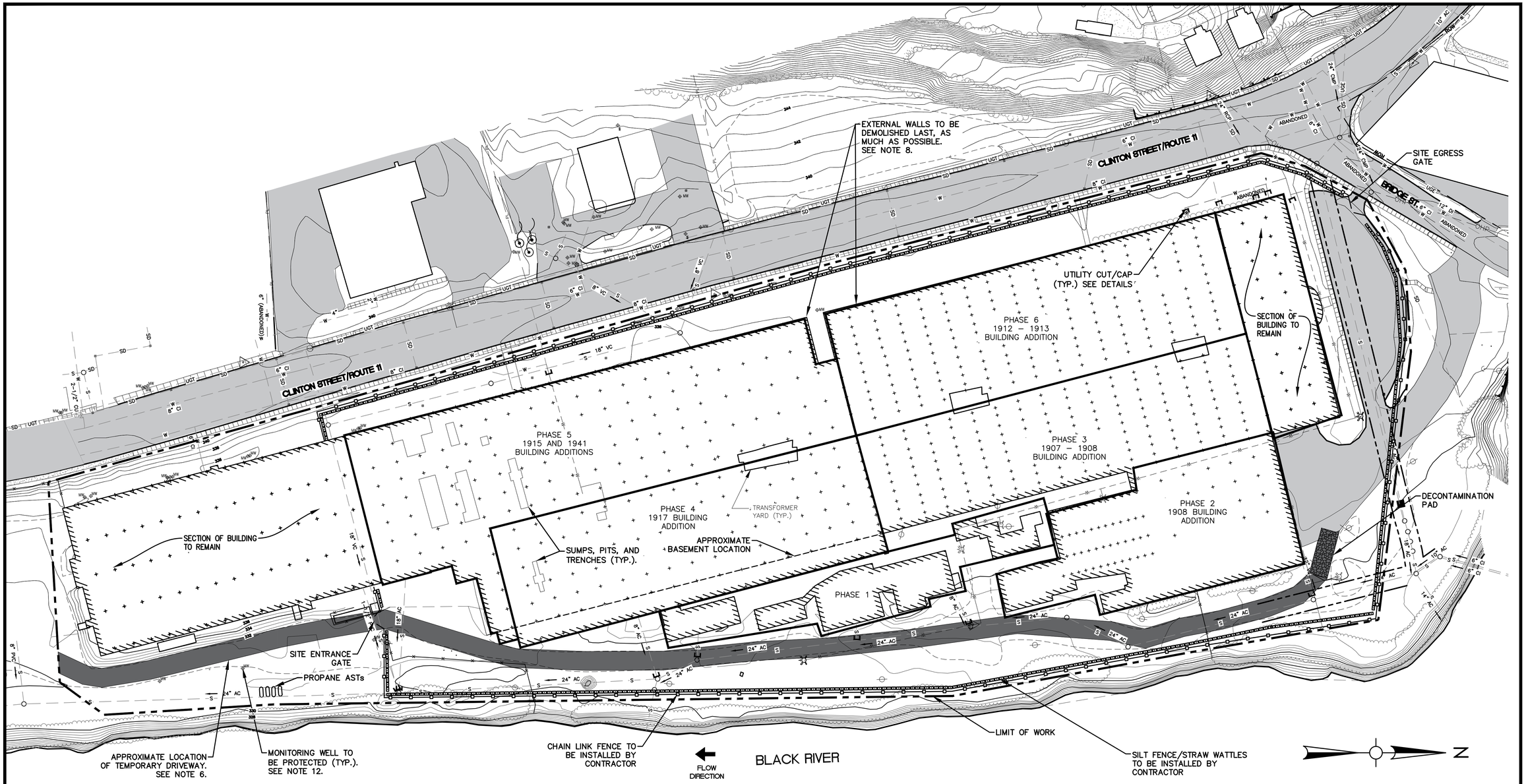
FILE NO. -

SHEET 4 OF 10



LEGEND:

- LIMIT OF WORK
- EXISTING BUILDINGS
- EXISTING WATER UTILITY
- EXISTING SEWER UTILITY
- EXITING DRAIN UTILITY
- EXISTING PAVEMENT
- TEMPORARY DRIVEWAY
- UTILITY CUT/CAP

NOTES:

1. CONTRACTOR RESPONSIBLE FOR SECURING THE SITE AND INSTALLING SITE FENCING/GATES AS SHOWN ON THIS DRAWING AND AS SPECIFIED IN SECTION 02821 – CHAIN LINK FENCING. IF FENCING DAMAGED DURING ABATEMENT OR DEMOLITION ACTIVITIES, THE CONTRACTOR TO REPAIR/REPLACE IMMEDIATELY AT NO ADDITIONAL COST TO OWNER.
2. THE CONTRACTOR SHALL MAKE ALL NECESSARY APPLICATIONS AND ARRANGEMENTS FOR TEMPORARY UTILITY SERVICE. THE CONTRACTOR SHALL PROVIDE GENERATORS FOR TEMPORARY ELECTRICAL SERVICE, AS REQUIRED FOR CONSTRUCTION OR OTHER BUILDINGS THAT ARE TO REMAIN.
3. THE CONTRACTOR SHALL PROTECT ALL UTILITIES DESIGNATED TO REMAIN (NEARBY OVERHEAD WIRES, ASSOCIATED UTILITY POLES AND STORMWATER SYSTEM) AND ADJACENT PROPERTIES FROM DAMAGE AND UNDERMINING DURING DEMOLITION ACTIVITIES.
4. ALL UTILITIES SHALL BE ABANDONED, CUT AND CAPPED AS SHOWN ON THIS DRAWING AND SPECIFICATION SECTION 02222–UTILITY ABANDONMENT. FOR CAPPED/PLUGGED UTILITY PIPES, CONTRACTOR SHALL PROVIDE DETECTABLE TRACER TAPE AND AN OAK MARKER ABOVE THE CAPPED/PLUGGED END AND INCLUDE GPS COORDINATES OF THE CAP IN THE AS–BUILT DRAWINGS.
5. THE CONTRACTOR SHALL INSTALL STAKES AND CAUTION TAPE AROUND PCB–IMPACTED SOIL AREAS SHOWN ON SHEET C–2 AND AVOID DISTURBING THE PCB–IMPACTED SOILS. SEE NOTES ON SHEET C–2 FOR ADDITIONAL INFORMATION.
6. THE CONTRACTOR SHALL INSTALL TEMPORARY DRIVEWAY AS SHOWN TO LOAD–OUT MATERIAL WITHOUT DISTURBING PCB–IMPACTED SOILS ON THE EASTERN SIDE OF THE SITE. AT A MINIMUM, CONTRACTOR SHALL INSTALL GEOTEXTILE FABRIC (MINIMUM OF 20–FEET WIDE) AND 6–INCHES OF CRUSHED STONE (MINIMUM OF 15–FEET WIDE) FROM THE SOUTHERN SIDE OF THE SITE TO THE EGRESS LOCATION SHOWN ON THE NORTHERN SIDE OF THE SITE. SEE SHEETS D–1 AND D–2 FOR ADDITIONAL REQUIREMENTS. TEMPORARY DRIVEWAY TO REMAIN FOR NEXT PHASE OF WORK.
7. THE SEQUENCE FOR ABATEMENT AND DEMOLITION PRESENTED ON THIS DRAWING IS AN APPROVED APPROACH BY THE VERMONT DEPARTMENT OF HEALTH (VTDOH) ASBESTOS AND LEAD REGULATORY PROGRAM AND EPA REGION 1 – ASBESTOS NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP). THE CONTRACTOR MAY PROPOSE AN ALTERNATE SEQUENCE BASED ON THEIR PREFERRED MEANS AND METHODS, BUT WILL NEED TO SUBMIT AND OBTAIN APPROVAL FROM VTDOH AND EPA REGION 1 – NESHAP, AT NO ADDITIONAL COST TO THE OWNER.
8. THE EXTERNAL WALL ALONG CLINTON STREET SHALL BE DEMOLISHED AS PART OF THE FINAL DEMOLITION PHASE. SOME INTERNAL BUILDING COMPONENTS MAY REMAIN UNTIL THE FINAL PHASE TO HELP STABILIZE THE EXTERNAL WALL.
9. PERIMETER DUST MONITORING REQUIRED DURING ALL ABATEMENT/DEMOLITON ACTIVITIES PER SPECIFICATION SECTION 01562–DUST CONTROL. AIR MONITORING SHALL BE REQUIRED PER THE ASBESTOS WORK PLAN AND SPECIFICATION SECTION 02051–ASBESTOS ABATEMENT.
10. CONTRACTOR SHALL PLUG ALL FLOOR DRAINS, ROOF DRAINS, AND SEWER INLETS (SINKS, TOILETS, ETC.) WITH 6–INCHES OF CEMENT.
11. BUILDING SECTIONS TO REMAIN SHALL BE FINISHED AS SHOW ON C–5 AND D–3.
12. CONTRACTOR SHALL PROTECT ALL MONITORING WELLS ON SITE. CONTRACTOR SHALL VERIFY ALL MONITORING WELL LOCATIONS IN THE FIELD. ANY MONITORING WELLS DAMAGED OR DESTROYED SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

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No.	Date	Description	Dr.By	Ck.By	App.By
A	12/30/16	PRELIMINARY			

12/30/16
DATE

REGISTERED PROFESSIONAL ENGINEER

STATE OF VERMONT
KENNETH JAMES BISSONNETTE
No. 8922
Environmental
LICENSED PROFESSIONAL ENGINEER

TOWN OF SPRINGFIELD, VERMONT
SPRINGFIELD REGIONAL DEVELOPMENT CORPORATION
ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

MISCELLANEOUS SITE WORK AND DEMOLTION PHASING PLAN

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-	1:50	-	2160317	PML	-	PVJ	KJB

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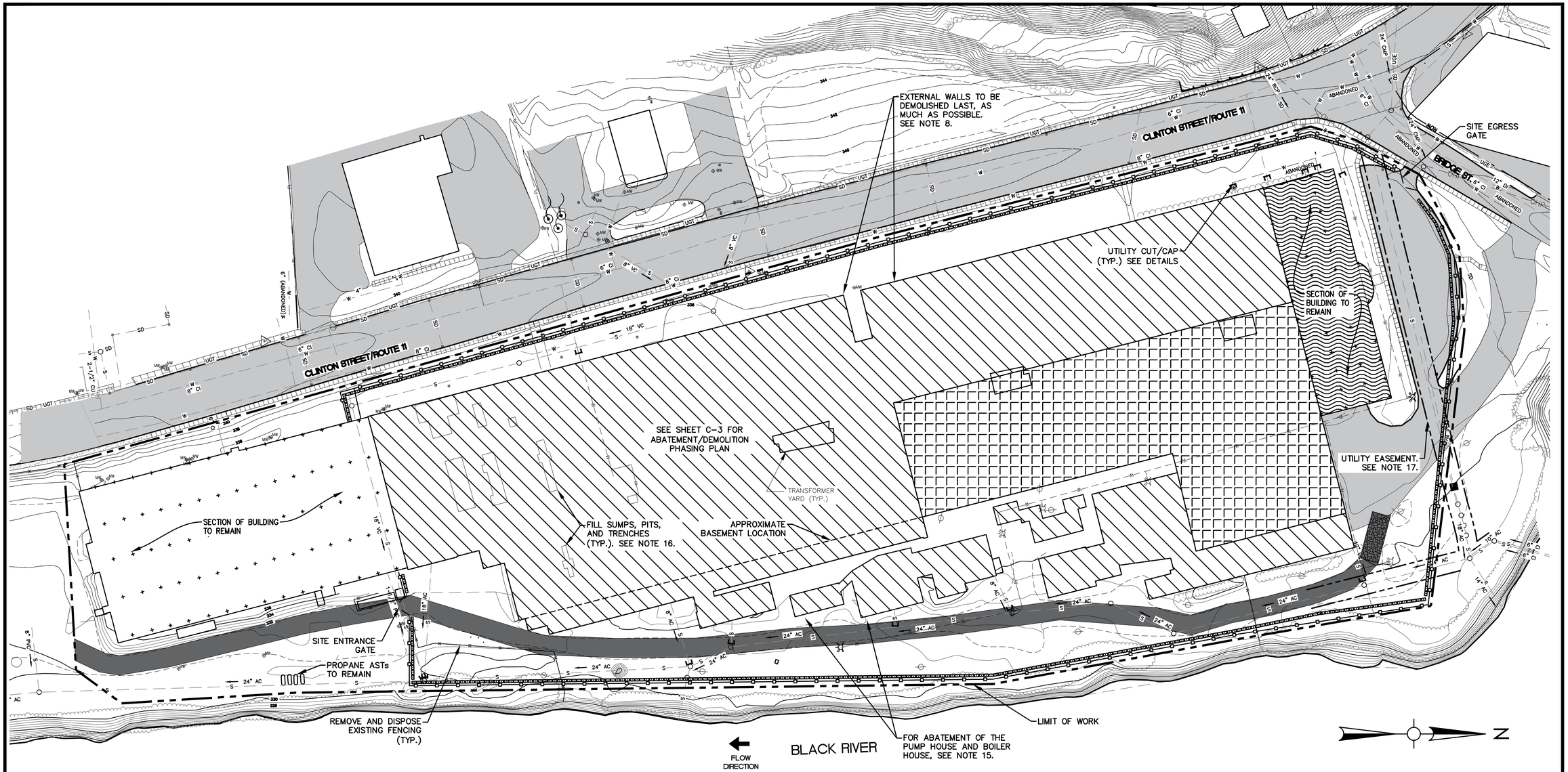
FILE NO. -

SHEET 5 OF 10



LEGEND:

- LIMIT OF WORK
- BUILDINGS TO BE DEMOLISHED
- PAVEMENT TO REMAIN
- TEMPORARY DRIVEWAY
- THIS APPROXIMATE AREA WAS PREVIOUSLY ABATED FOR ASBESTOS. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF APPROXIMATELY 20 LF OF THERMAL SYSTEM INSULATION (TSI) FROM ACCESSIBLE AREAS IN ACCORDANCE WITH THE ABATEMENT WORK PLAN AND AS SPECIFIED IN SPECIFICATION SECTION 02051–ASBESTOS ABATEMENT.
- THE CONTRACTOR SHALL REMOVE AND DISPOSE OF APPROXIMATELY 2,000 LF OF THERMAL SYSTEM INSULATION (TSI) FROM ACCESSIBLE AREAS PRIOR TO DEMOLITION IN ACCORDANCE WITH THE ABATEMENT WORK PLAN AND AS SPECIFIED IN SPECIFICATION SECTION 02051–ASBESTOS ABATEMENT.

NOTES:

1. THE CONTRACTOR SHALL COORDINATE THE LOCATION AND USE OF A TEMPORARY WATER SERVICE FOR DEMOLITION ACTIVITIES WITH THE TOWN OF SPRINGFIELD AND SPRINGFIELD FIRE DEPARTMENT AND SHALL PROVIDE REQUIRED BACKFLOW PREVENTER(S) AS REQUIRED, AT NO ADDITIONAL COST TO THE OWNER.
2. PRIOR TO THE DEMOLITION OF THE EXISTING BUILDINGS, WITH THE EXCEPTION OF WATER SERVICE REQUIRED FOR ASBESTOS ABATEMENT AND DUST CONTROL, ALL EXISTING UTILITIES TO THE BUILDINGS SHALL BE VERIFIED, LOCATED, ABANDONED/REMOVED, AND DISPOSED. UTILITY DEMOLITION/ABANDONMENT SHALL BE AS INDICATED ON THIS DRAWING AND PER SPECIFICATION SECTION 02222–DEMOLITION.
3. PRIOR TO ABATEMENT AND DEMOLITION ACTIVITIES, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER REGARDING PERIMETER AIR MONITORING REQUIREMENTS PER THE ASBESTOS WORK PLAN INCLUDED AS PART OF THE SPECIFICATION SECTION 02051–ASBESTOS ABATEMENT.
4. AS INDICATED IN THE SPECIFICATION SECTIONS 01014 AND 02220–DEMOLITION, PRIOR TO ABATEMENT AND DEMOLITION ACTIVITIES, THE PCB–IMPACTED CONCRETE FLOOR SLABS SHOWN ON SHEET C–3 SHALL BE PROTECTED AS FOLLOWS AND AS SPECIFIED IN SPECIFICATION SECTION 02220–DEMOLITION. THE CONTRACTOR SHALL INSTALL A LAYER OF 10–MIL NYLON REINFORCED POLYETHYLENE (NRPE) SHEETING OVER THE PCB AREAS. THE NRPE SHEETING EDGES WILL BE SECURED TO THE CONCRETE FLOORS WITH ADHESIVE. THE CONTRACTOR SHALL INSTALL A LAYER OF PLYWOOD (MINIMUM OF 1/2–INCH THICKNESS) OVER THE NRPE SHEETING AND AN ADDITIONAL LAYER OF 10–MIL NRPE SHEETING WILL BE INSTALLED OVER THE PLYWOOD AND SECURED TO THE FLOOR OUTSIDE OF THE PCB AREA WITH ADHESIVE.
5. THE BUILDING PCB AREAS ≥ 1 PPM WILL BE DESIGNATED "RESTRICTED ZONES" WHERE ACCESS WILL BE LIMITED; THE CONTRACTOR SHALL INSTALL CONES AND CAUTION TAPE AROUND THE RESTRICTED ZONES TO FURTHER LIMIT ACCESS.
6. FOOT TRAFFIC AND RUBBER WHEELED VEHICLES WILL ONLY BE ALLOWED IN THE RESTRICTED ZONES DURING ABATEMENT/DEMOLITION ACTIVITIES IN THOSE AREAS.
7. THE CONTRACTOR SHALL INSPECT AND MAINTAIN THE PROTECTIVE LAYER DURING THE COURSE OF THE WORK AND REPAIR/REPLACE DAMAGED SHEETING IMMEDIATELY, AS REQUIRED.
8. THE CONTRACTOR SHALL USE EXTRA CARE TO MINIMIZE WATER FLOWING ACROSS RESTRICTED ZONES, INCLUDING INSTALLING A BERM AROUND THE RESTRICTED ZONES, AS REQUIRED. ANY WATER COLLECTED FROM THE SITE SHALL BE RUN THROUGH A 5 MICRON FILTER TO A FRAC TANK TO BE SAMPLED. TREATMENT MAY BE REQUIRED TO MEET APPLICABLE NPEDES DISCHARGE REQUIREMENTS TO THE SEWER SYSTEM. SEE SPECIFICATION SECTION 02240–DEWATERING FOR ADDITIONAL INFORMATION.
9. WITH THE EXCEPTION OF THE CONCRETE FLOOR SLAB AND BASEMENT AREAS, DEMOLISH THE FORMER JONES AND LAMSON FACILITY, IN ITS ENTIRETY, AS DETAILED IN SPECIFICATION SECTION 02220–DEMOLITION.
10. AFTER DEMOLITION TO THE CONCRETE SLAB, MATERIAL ABOVE THE PROTECTIVE LAYER SHALL BE REMOVED FOR DISPOSAL AS ACM WASTE.
11. ONCE THE ACM DEBRIS ABOVE THE CONCRETE SLAB IS CLEARED, THE NRPE SHEETING, PLYWOOD AND ANY MATERIAL ON THE FLOOR BELOW THE SHEETING SHALL BE COLLECTED AND DISPOSED OF AS A DUAL ASBESTOS/PCB WASTE.
12. WITHIN THE LIMIT OF WORK, ALL ABOVE FLOOR SLAB STRUCTURES ARE TO BE REMOVED IN THEIR ENTIRETY. FLOOR SLABS OF THE BASEMENTS, PITS, SUMPS, TRENCHES AND ASSOCIATED WALLS BELOW THE FIRST FLOOR CONCRETE SLAB TO REMAIN AS SHOWN ON THE DRAWINGS AND SPECIFIED IN SPECIFICATION SECTION 02220–DEMOLITION. SEE SHEET C–3 FOR DEMOLITION PHASING PLAN. BUILDING CONTENTS SHALL BE REMOVED AND DISPOSED OF AS SPECIFIED IN THE ASBESTOS WORK PLAN AND PER SPECIFICATION SECTION 02220–DEMOLITION AND 02051–ASBESTOS ABATEMENT.
13. THE CONTRACTOR SHALL ALSO DEMOLISH AND REMOVE ALL IMPROVEMENTS AND APPURTENANCES ASSOCIATED WITH THE STRUCTURES (E.G., PLATFORMS, STAIRS, PORCHES, BUILD–OUTS, ENTRANCE WAYS, LOADING PLATFORMS, ANCILLARY ITEMS, ETC.) THAT MAY EXIST BEYOND THE HATCHING INDICATED. DEMOLITION WORK SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION SECTION 02220–DEMOLITION.
14. ALL NON–POROUS BUILDING CONTENTS (STEEL COLUMNS) SHOULD BE CLEANED AND RECYCLED PER THE APPROVED ASBESTOS WORK PLAN AND APPLICABLE REGULATIONS, AT NO ADDITIONAL COST TO THE OWNER.
15. AFTER ABATEMENT AND DEMOLITION OF THE ABOVE GRADE STRUCTURES AND REMOVAL OF THE PCB PROTECTION LAYER AS A DUAL ASBESTOS/PCB WASTE, THE CONTRACTOR SHALL PROTECT THE PCB–IMPACTED AREAS PER SHEET C–5.
16. SEE SPECIFICATION SECTION 02051–ASBESTOS ABATEMENT FOR CONVENTIONAL ABATEMENT REQUIREMENTS AT THE PUMP HOUSE AND BOILER HOUSE.
17. AFTER ABATEMENT/DEMOLITION OF THE BUILDING, FILL ALL SUMPS, PITS, AND TRENCHES WITHIN THE BUILDING, WETHER SHOWN ON THE PLAN OR NOT, WITH CLASS B BACKFILL IN ACCORDANCE WITH SPECIFICATION SECTION 02300 – EARTHWORK, TO MATCH CONCRETE FLOOR ELEVATION.
18. CONTRACTOR SHALL COORDINATE WITH THE TOWN OF SPRINGFIELD FOR EXACT LOCATION OF EASEMENT. LOCATION SHOWN IS APPROXIMATE. EASEMENT MUST REMAIN CLEAR AND ACCESSIBLE FOR THE DURATION OF THE WORK.

50 25 0 50 100
SCALE: 1"=50'

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No.	Date	Dr.By	Ck.By	App.By	Description
					APPROVED
					12/30/16 DATE

REGISTERED PROFESSIONAL ENGINEER

STATE OF VERMONT — KENNETH J. BISSETTE — No. 8922 — Environmental Engineer — PROFESSIONAL ENGINEER

TOWN OF SPRINGFIELD, VERMONT
SPRINGFIELD REGIONAL DEVELOPMENT CORPORATION
ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

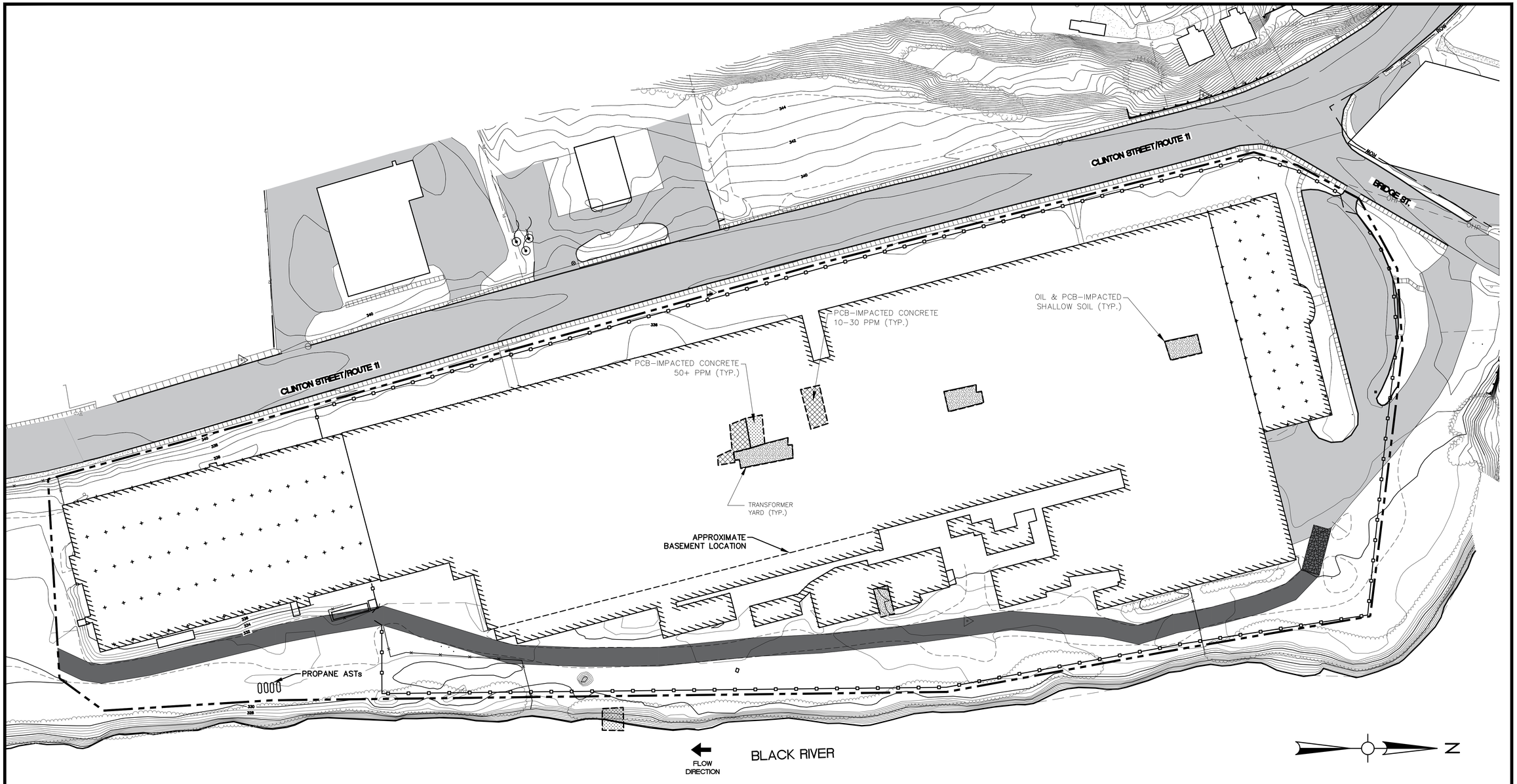
BUILDING DEMOLITION PLAN

CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR BY	DSN BY	CHK BY	APP BY
-	1:50	-	2160317	PML	-	PVJ	KJB

C-4

FILE NO. -

SHEET 6 OF 10



LEGEND:

- LIMIT OF WORK
- EXISTING BUILDINGS
- PCB-IMPACTED CONCRETE
- EXISTING PAVEMENT
- TEMPORARY DRIVEWAY
- PCB IMPACTED CONCRETE 10-30 PPM
- PCB IMPACTED CONCRETE 50+ PPM
- OIL & PCB IMPACTED SHALLOW SOIL

NOTES:

1. PCB CAUTION SIGNS SHALL BE INSTALLED ON CHAIN LINK FENCING PER THE DETAIL ON SHEET D-1, AND NEW 6-MIL POLYETHYLENE SHEETING WILL BE PLACED OVER THE AREAS WITHIN THE BUILDING FOOTPRINT, AS SHOWN ON THIS PLAN, WITH PCB CONTAMINATION ≥ 10 PPM ALONG WITH STRAW WATTLES AND APPROXIMATELY 2-INCHES OF PROCESSED GRAVEL PER THE SPECIFICATION SECTION 02300 – EARTHWORK TO ACT AS A TEMPORARY CAP PER THE DETAIL ON SHEET D-2 UNTIL THE NEXT PHASE OF PCB REMEDIATION WORK BEGINS (BY OTHERS). FOOT TRAFFIC AND RUBBER WHEELED VEHICLES WILL ONLY BE ALLOWED ON THE TEMPORARY CAP AREAS FOR THE CAP INSTALLATION.
2. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE DECONTAMINATION PAD PER THE SPECIFICATION SECTIONS 02220--DEMOLITION AND 02051-ABESTOS ABATEMENT AND THE APPLICABLE REGULATIONS. THE TEMPORARY DRIVEWAY SHALL REMAIN FOR THE OWNER'S USE DURING THE NEXT PHASE OF WORK.

50 25 0 50 100
SCALE: 1"=50'

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No.	Date	Dr.By	Ck.By	App.By	Description
A	P	P	R	O	V E D

12/30/16
DATE

REGISTERED PROFESSIONAL ENGINEER

STATE OF VERMONT
KENNETH J. BISSONNETTE
No. 8922
Environmental
Licensed
PROFESSIONAL ENGINEER

TOWN OF SPRINGFIELD, VERMONT
SPRINGFIELD REGIONAL DEVELOPMENT CORPORATION
ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

PCB CAPPING PLAN

CAD'D NO.	SCALE:	CONTRACT:	JOB NO.	DR. BY	DSN BY	CHK BY	APP BY
-	1:50	-	2160317	PML	-	PVU	KJB

C-5

FILE NO. -

SHEET 7 OF 10

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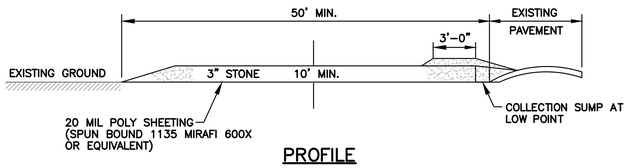
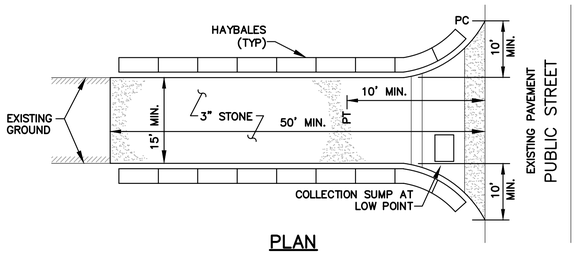


PROFILE

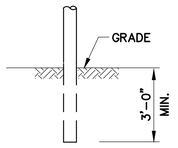


PLAN

NOTES:

1. 20 MIL POLY SHEETING WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
2. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
3. ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
4. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING SUMP. WATER SHALL BE COLLECTED AND TREATED OR DISPOSED OF PER SPECIFICATION SECTION 02240 – DEWATERING.
5. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.
6. STONE, ACCUMULATED SEDIMENT, AND ANY COMMINGLED DEBRIS/WASTE SHALL BE REMOVED AT THE CONCLUSION OF PROJECT AND DISPOSED OF IN ACCORDANCE WITH SPECIFICATION SECTIONS 02220–DEMOLITION AND 02051–ASBESTOS ABATEMENT. REMOVAL OF STONE SHALL BE AT NO ADDITIONAL COST TO THE OWNER.

DECONTAMINATION PAD
N.T.S.



DRIVEN POST DETAIL
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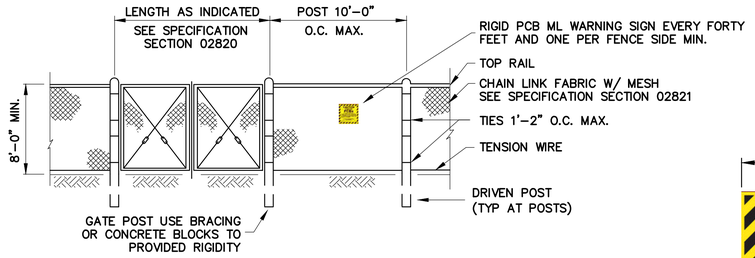
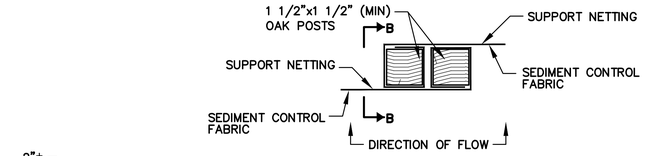


NOTE:

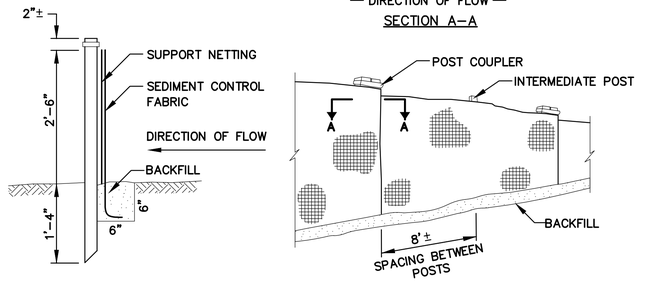
1. SEE SHEET C–3 AND SPECIFICATION SECTION 02821–CHAIN LINK FENCE.

CHAIN LINK FENCE AND GATE DETAIL
N.T.S.

PCB ML WARNING SIGN
N.T.S.



SECTION A–A



SECTION B–B ELEVATION

SILT FENCE DETAIL
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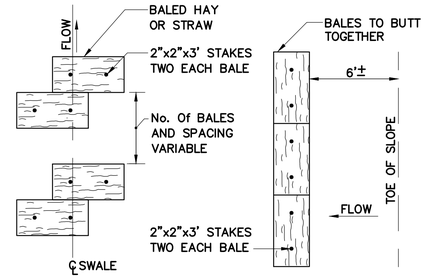
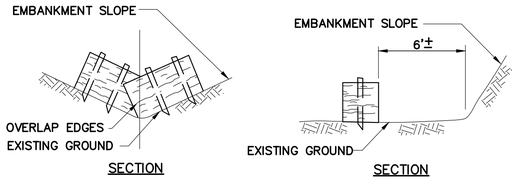


PLAN PLAN

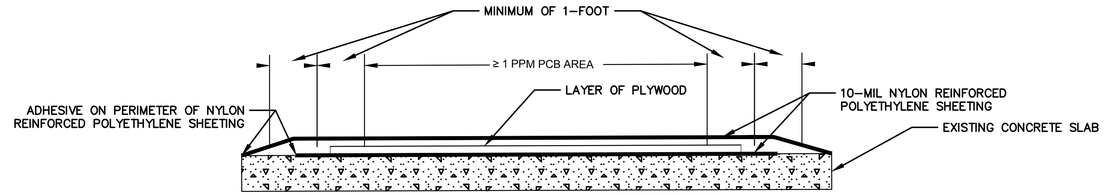


SECTION SECTION

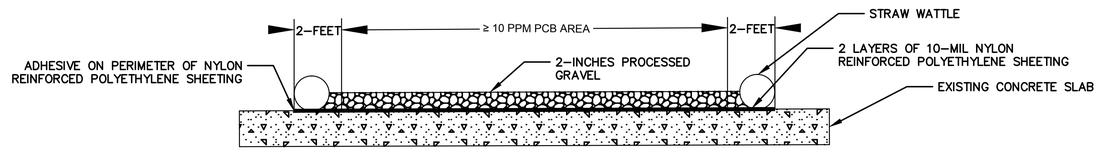
NOTE:
TO BE USED IN LOCATIONS WHERE THE EXISTING GROUND SLOPES IN TOWARD THE TOE OF SLOPE

NOTE:
TO BE USED IN LOCATIONS WHERE THE EXISTING GROUND SLOPES AWAY FROM THE TOE OF SLOPE

HAY BALES DETAIL
N.T.S.



TEMPORARY PCB CONCRETE PROTECTION
N.T.S.



CAP TO EXTEND 2–FEET BEYOND LIMITS OF PCB–IMPACTED AREAS SHOWN ON C–2 AND C–5 (TYP.).

PCB CAP
N.T.S.

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No.	Date	Description	Dr.By	Ck.By	App.By
		APPROVED			

12/30/16 DATE

REGISTERED PROFESSIONAL ENGINEER

STATE OF VERMONT KENNETH J. BISGROVE No. 8922 Environmental PROFESSIONAL ENGINEER

SPRINGFIELD, VERMONT
DEPARTMENT OR DIVISION
ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

DETAILS I

APP.BY	CHK.BY	DSN.BY	DR.BY	JOB NO.	CONTRACT:	SCALE:	CADD NO.	FILE NO.
KJB	PVU		PML	2160317	-	-	-	-

D-1

SHEET 8 OF 10

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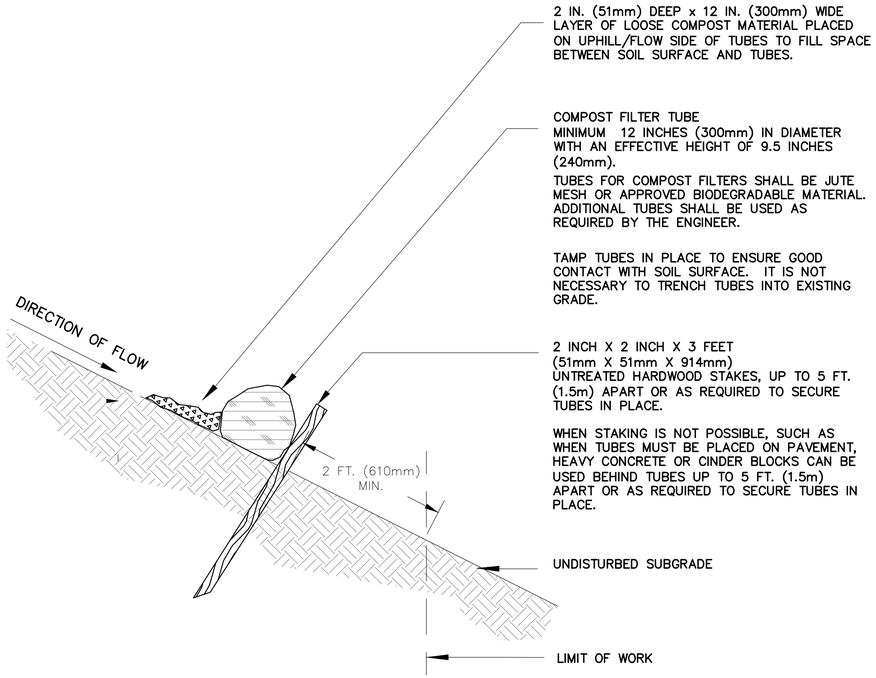
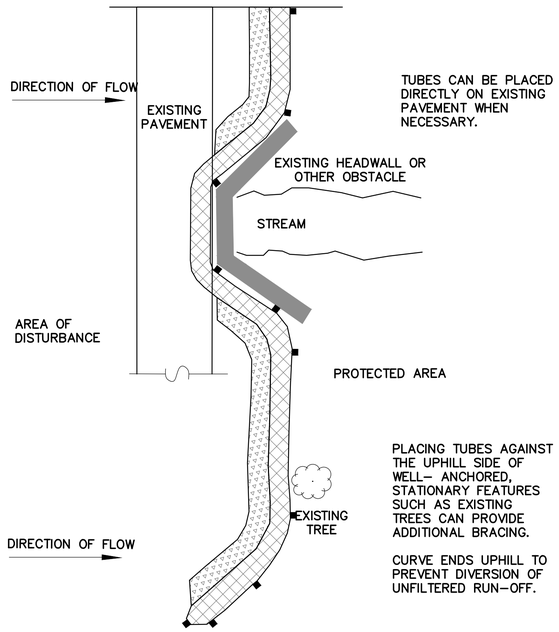


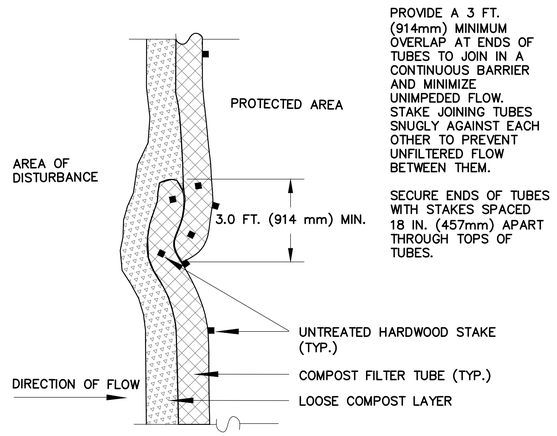
STRAW WATTLE DETAIL
NOT TO SCALE



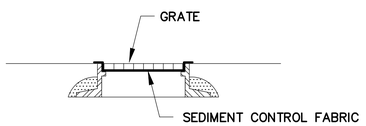
PLAN VIEW

GENERAL NOTES:

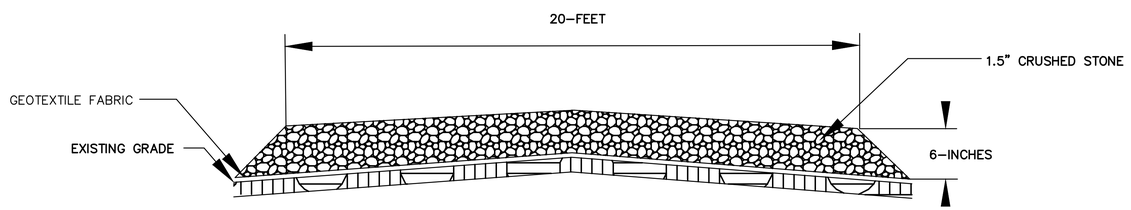
1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES (300mm) FOR SLOPES UP TO 50 FEET (15.24m) IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
4. CONFIGURE TUBES AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUN–OFF.



PLAN VIEW



CATCH BASIN PROTECTION DETAIL
N.T.S.



TEMPORARY DRIVEWAY
N.T.S.

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No.	Date	Description	Dr.By	Ck.By	App.By
A	P	P	R	O	V	E	D	12/30/16 DATE

REGISTERED PROFESSIONAL ENGINEER

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SPRINGFIELD, VERMONT
DEPARTMENT OF DIVISION
ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

DETAILS II

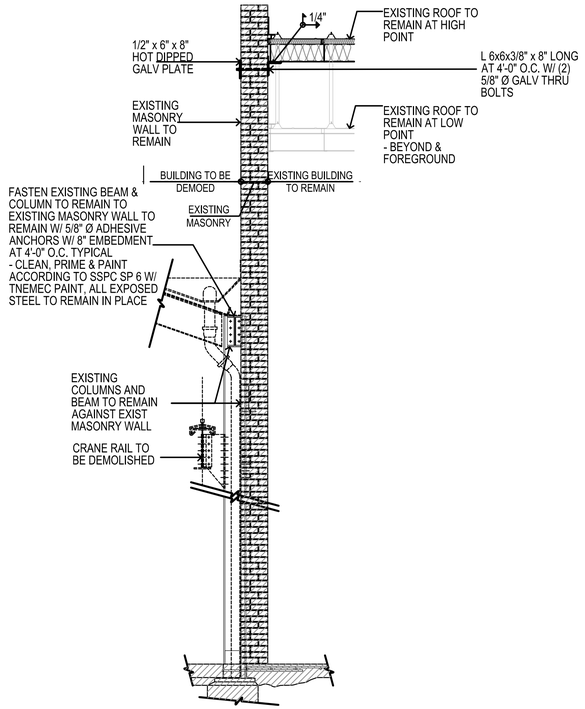
DR.BY	DSN.BY	CHK.BY	APP.BY
PML		PVU	KJB

JOB NO.	CONTRACT:	SCALE:	CADD NO.
2160317	-	-	-

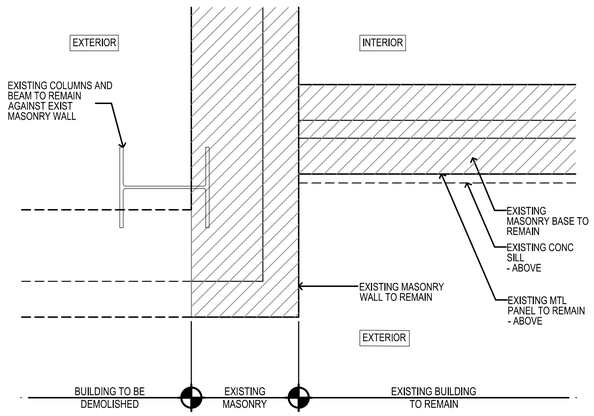
D-2

FILE NO. -

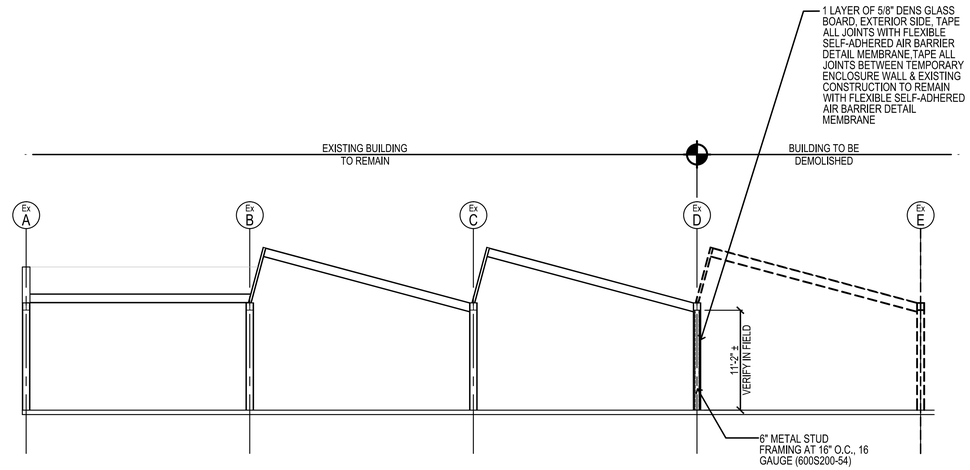
SHEET 9 OF 10



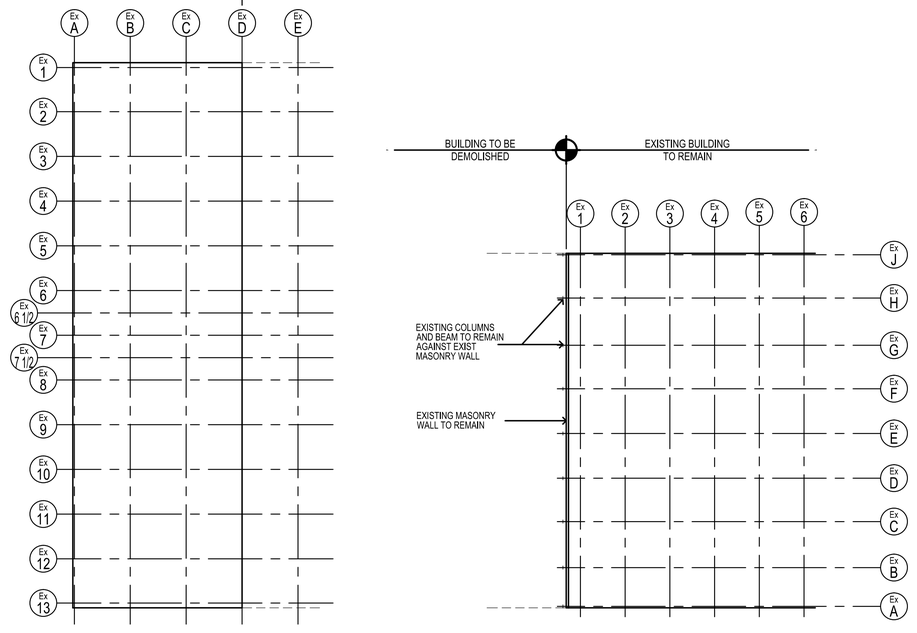
EXISTING 1979 BUILDING WALL SECTION
SCALE: 3/8" = 1'-0"



1979 BUILDING WALL SECTION DETAIL – PLAN VIEW
SCALE: 1-1/2" = 1'-0"



EXISTING NORTH OFFICE BUILDING SECTION
SCALE: 1/8" = 1'-0"



1979 EXISTING BUILDING PARTIAL FLOOR PLAN
SCALE: 1/32" = 1'-0"

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No.	Date	Dr.By	Ck.By	Appr.By	APPROVED Description	DATE
						Jan 3, 2017

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Jan 3, 2017

SPRINGFIELD, VERMONT
DEPARTMENT OR DIVISION

ABATEMENT AND DEMOLITION OF FORMER JONES AND LAMSON BUILDINGS - 160 CLINTON STREET

DETAILS III

CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR.BY	DSN.BY	CHK.BY	APP.BY
-	-	-	2160317	PWL		PVU	KJB

D-3

FILE NO. -

SHEET 10 OF 10

Appendix C: Air Monitoring Plan

AIR MONITORING PLAN – 160 CLINTON STREET SPRINGFIELD, VERMONT

DRAFT

SMS # 77-0122
JONES AND LAMSON PROPERTY

Stone Project ID 15-049
August 8, 2018

Prepared for:

Robert Flint, Executive Director
Springfield Regional Development Corporation
14 Clinton Street, Suite 7
Springfield, VT 05156

Prepared by:

Stone Environmental, Inc.
Dan Voisin
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Tel. / 802.229.1875
E-Mail / dvoisin@stone-env.com

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1. INTRODUCTION

This Air Monitoring Plan (Plan) has been prepared for the excavation and grading of contaminated soils at the Jones and Lamson (J&L) property located at 160 Clinton Street, Springfield, Vermont (the Site; Figure 1, Appendix A). The Plan was prepared by Stone Environmental, Inc. (Stone) on behalf of Springfield Regional Development Corporation in support of upcoming renovation and reconstruction at the Site. Previous environmental assessment identified that shallow soils are impacted with elevated concentrations of lead.

The Plan describes the approach for dust suppression measures and perimeter air monitoring that will be implemented during remedial excavation and Site-wide grading activities that will occur during redevelopment of the Site. Construction activities requiring dust monitoring are expected to occur sometime in 2019. Air monitoring as described within this Plan will cease following installation of base materials for construction of the proposed building and parking lot. The monitoring will be conducted to:

1. Determine the air quality within the work zone;
2. Minimize the potential for unacceptable levels of airborne contaminants to leave the Site during redevelopment; and
3. Implement environmental controls in the event Site specific action levels are exceeded.

1.1. Site Description

Plant #1 of the former Jones and Lamson (J&L) facility comprises a 270,000-square foot (ft^2) former machine manufacturing facility and several outbuildings situated on a 16.9-acre parcel located at 160 Clinton Street in Springfield, Vermont, Windsor County (the Site or Property). Clinton Street defines the western property boundary while the Black River lies to the east of the Site. The northern property boundary is formed by Bridge Street, with the Edgar May Health and Recreation Center and former Springfield Foundry (former J&L Plant #4) located further to the north. Artisan Surfaces, manufacturers of stone and artificial countertops, occupies the southernmost portion of the former J&L Plant #1 building within a currently separate parcel. Further to the south is the Robert S. Jones Center, formerly referred to as J&L Plant #2.

A narrow greenbelt containing grass and a row of street trees separates the western side of the Site building from Clinton Street. An asphalt parking lot is located immediately north of the Site building and south of bridge Street. The parking lot is currently used by patrons of the Edgar May Health and Recreation Center to the north of the Site. A gated gravel drive accesses the eastern area of the Site from the asphalt parking lot in the north and the Artisan Surfaces property to the south. The eastern exterior area of the Site is gravel and brush and generally flat, with the exception of the steeply sloping river bank at the easternmost extent of the Property. Several small outbuildings are located east of the main facility.

According to previous historical accounts (e.g., Dufresne-Henry, 1989) the Site is constructed on a former riparian wetland that was backfilled with approximately ten feet of material. Fill material reportedly consists of sand, gravel, and foundry waste. With the exception of the portion that is occupied by Artisan Surfaces, the Site building is currently vacant and is not served by any utilities. The greenbelt west of the building is maintained by the Town of Springfield; however, the exterior areas east of the Site building are not regularly maintained and are overgrown. The Town of Springfield sewer main traverses the eastern portion of the Site. Two combined sewer overflows (CSOs) are located along the sewer main, discharging to the Black River.

The Site is situated adjacent to the following hazardous waste sites:

- 140 Clinton Street; Edgar May Health and Recreation Center (formerly J&L Plant #4), SMS # 2009-3906;

- 197 Clinton Street; Irving filling station/Jake's Market (formerly Springfield gas, a manufactured gas plant), SMS # 98-2399;
- 200 Clinton Street: Artisan Surfaces (the southern extent of the J&L Plant #1 building), SMS # 2013-4373;
- 201 Clinton Street; Springfield Police Department (formerly Lucas Industries, a car dealership), SMS # 2006-3608; and
- 257 Clinton Street; Former Bryant Grinder machining plant, SMS #77-0123;

The Lucas Industries site has been demonstrated to have been impacted by contaminants from the adjacent Go Go Gas property, but has received a Certificate of Completion through the VTDEC Brownfield Response Program. The remaining adjacent hazardous waste sites are under active VT DEC management.

1.2. Site History

The Site and surrounding properties have been in industrial use since at least the early 1900's. The J&L Plant #1 building terminated operations in 1985. Between the early 1900's and 1985, plant operations included metal grinding, machining, planning, heat treatment, assembly, and painting to aid in the manufacturing of metal lathes and optical compactors. As a result of manufacturing processes, various hazardous materials were released at the Site; including PCB contaminated cutting fluids, #6 bunker fuel oil, various other petroleum fuels and distillates, metals, and chlorinated solvents. In addition to manufacturing processes that resulted in releases to the Site, grinding swarf was disposed of on-Site along the bank of the Black River. Metal shavings produced during manufacturing processes were collected and transferred to the chip shed where PCB contaminated cutting oil was allowed to drain into the underlying ground surface.

1.3. Sources of Contaminants

The Site has been subject to extensive investigation and remediation between 1990 and 2018. The area of concern for this air monitoring plan is along the eastern edge of the along the black river, where PCB remediation has occurred, however, elevated concentrations of lead are still present in surface soils.

1.4. Screening Evaluation

The concentrations of the contaminants of concern (COCs; lead) in shallow soil were evaluated to develop a protective air monitoring plan. Based on the highest observed concentrations of lead detected during previous investigations, the highest anticipated concentration of lead in air was calculated by the following equation:

$$C_{air}\left(\frac{\mu g\ coc}{m^3\ \text{air}}\right) = C_{soil}\left(\frac{mg\ coc}{kg\,\text{soil}}\right) \times 10^{-6}\left(\frac{kg}{mg}\right) \times C_{sl}\left(\frac{\mu g\ soil\ [= dust]}{m^3\ \text{air}}\right)$$

Where: C_{air} = Concentration of COC in air (microgram per cubic meter [µg/m^3])
C_{soil} = Concentration of COC in soil (milligrams per kilogram [mg/kg])
C_{sl} = Concentration of dust screening level in air (µg/m^3)

The calculation was conservatively based on the assumptions that the evaluated concentration in soil would become airborne and present at the property boundary, therefore representing a "most vulnerable" scenario. In addition, the screening evaluation assumed 1) dust would be maintained below the Vermont and National Ambient Air Quality Standard (NAAQS) concentration of 150 micrograms per cubic meter (µg/m^3) for PM_{10},

which is defined as particulate matter 10 micrometer or less in diameter and 2) if calculated air concentrations exceeded regulatory criteria with a dust concentration of 150 µg/m^3, additional PM_{10} dust screening levels were evaluated. The maximum anticipated concentration for lead in air is provided in Table 1, below. Concentrations for lead were used to calculate maximum anticipated air concentrations.

Table 1: Maximum Anticipated Air Concentration – Site COCs

Contaminant of Concern	Maximum Detected Concentration in Soil (mg/kg)	Required Concentration in Soil to Reach Air Screening Level @ PM_{10} 150 µg/m^3 (mg/kg)	Calculated Maximum Detection in Air PM_{10} @ 150 for 24 hour (µg/m^3)	Calculated Maximum Detection in Air PM_{10} @ 120 (µg/m^3)	Regulatory Agency Air Screening Levels (µg/m^3)
Lead	1,250	1,000	0.19	0.15	0.15 (NAAQS)

Notes:
mg/kg = Milligrams per kilogram
µg/m^3 = Micrograms per cubic meter
cPAH = total carcinogenic polycyclic aromatic hydrocarbons, normalized to benzo(a)pyrene toxicity equivalent concentration (B[a]P-TEC)
* = Coal tar Pitch Volatiles (benzene soluble fraction) OSHA PEL
NAAQS = National ambient air quality standard
PM_{10} = particulate matter greater than 10 micrometers
OSHA PEL = Occupational Safety and Health Administration permissible Exposure Limit

The calculated air concentrations of lead was compared to available screening levels, which, for lead, include both Vermont and National Ambient Air Quality Standards (NAAQS). The Vermont and NAAQS screening level for Particulate Matter PM_{10}, which is based on a 24-hour time weighted average (TWA), was used for comparison with calculated air concentrations for these COCs. Concentrations were also compared to Occupational Safety and Health Administration permissible Exposure Limits (OSHA PELSs), which are based on an 8-hour TWA.

The highest concentration of lead in soil could result in a calculated maximum detection in air with PM10 at 150 µg/m^3 is greater than the regulatory agency air screening level. The calculated maximum lead detection in air with PM10 at 120 µg/m^3 is equal to the NAAQS for lead (0.15 µg/m^3), therefore 120 µg/m^3 of dust will serve as the Site action level.

PM_{10} concentrations lower than the NAAQS standards were evaluated to determine an appropriate Site-specific screening level that would be protective of Site workers and neighboring site users from lead. Assuming a PM_{10} concentration of 120 µg/m^3, calculated maximum air concentrations for lead are equal to the NAAQS criteria.

Based on these calculations, personal air monitoring for lead would not be required as long as perimeter and working zone PM_{10} air concentrations do not exceed 120 µg/m^3, as this would be protective of Site worker health and nearby off-Site receptors. Adjoining properties are depicted on Figure 2.

2. DUST SUPPRESSION

Dust suppression measures will be implemented during the course of all work that disturbs or leaves exposed contaminated soil to minimize the generation and potential movement of fugitive dust off-Site. Dust suppression measures that will be implemented as part of this Plan include:

- Water exposed areas that have been disturbed at least twice daily to prevent visible dust emissions, except when rain provides adequate moisture content to prevent visible dust emissions.
- Water all unpaved access roads, parking areas, and staging area three times daily, except when rain provides adequate moisture content to prevent visible dust emissions. The rate of application will depend on conditions such as work activity and weather.
- Limit traffic speeds on unpaved roads to 15 miles per hour
- Cover and protect all loose stockpiled construction materials that are not being actively used (including clean soil) with wattles, polyethylene sheeting, or other appropriate covering against rain and wind. Active use is defined as materials that are scheduled for use within 14 days.
- Limit the track-out of dust. The contractor will control vehicle traffic such that all vehicles exiting the Site will travel across an exit grid, consisting of a sufficient length bed of 6-inch gravel or structural steel grid. The exit grid will shake and flex vehicle tires, dislodging rocks, soil, and debris from tire treads.
    - Stone field staff will monitor compliance and effectiveness of the exit grid throughout the project and take appropriate action to address issues with track-out as they arise.
    - Wet-sweep public streets if visible soil material is tracked off the Site.
- Cover truck beds with tarps once filled with contaminated soils.
- In the event of high wind conditions, conduct additional dust suppression methods, such as increasing watering frequency or applying calcium chloride. A high wind condition is defined as 25 mile per hour (mph) winds sustained for at least 5 minutes in any 1 hour period, as measured by an anemometer with a minimum resolution of 1.0 mph.
    - Suspend work if high wind conditions occur during excavation or grading activities and additional dust suppression methods are not successful at controlling dust below Site action levels as defined in Section 7 of this document.
- Perform air monitoring as described within this plan.

The active work areas of the Site will be designated as Exclusion Zones during the periods when contaminated soils are being excavated, handled, loaded, and transported from Site. Access to the Exclusion Zone will be controlled by the general contractor with guidance from Stone. No unauthorized personnel shall be within the Exclusion Zone. To prevent trespass into the Exclusion Zone during non-working hours, a fence will be installed along the Site perimeter and gates locked.

3. PERIMETER AND WORKING ZONE AIR MONITORING METHODS

Air monitoring will be performed to determine and document that excavation and grading operations do not generate dust particles above action levels at the Site property boundaries (Figure 2). In the event that dust concentrations exceed the action level, onsite activities will be temporarily suspended so that additional dust mitigation measures can be performed. Visual monitoring for dust generation will be performed in addition to the permanent air-monitoring stations, described below, as a means to evaluate the effectiveness of dust suppression measures. If dust is visible in a localized area, suppression methods will be immediately implemented. Perimeter and work zone dust monitors will be then be checked for action level exceedances and additional engineering controls will be evaluated.

3.1. Monitoring Equipment and Methods

Real-time particulate air monitors (e.g. TSI Dust Trak 8532 or equivalent) equipped with an omni-directional air intake device and a PM_{10} impactor head will be used at the Site to monitor dust levels at the Site boundaries and within the area of disturbance during excavation and regrading activities of contaminated soils. Real-time PM_{10} concentrations will be collected continuously during normal working hours (7:00 AM to 5:00 PM). Data will be monitored by Stone using real-time using telemetry and recorded digitally.

Real-time dust monitoring may not be conducted during inclement weather conditions, including heavy rain or fog, as these conditions interfere with the functionality of the instrument and may cause damage. Precipitation will reduce the potential for the dust generation, so work may proceed under these conditions, even if monitors cannot be operated. During these periods of operation, visual observations will be used to determine if dust emissions are being generated that require suppression measures.

Wind speed and direction, precipitation, and temperature will be monitored using an on-Site weather station (ONSET HOBO U30-NRC, or equivalent). The weather station location will be dependent on construction activities and will be placed as to not impede construction. Wind speed and direction will be monitored using an anemometer and wind vane, respectively. Wind data will be recorded at one minute intervals. Weather station data will be transmitted to Stone directly using telemetry and recorded digitally.

3.2. Monitoring Locations

Three tripod mounted dust monitors will be setup around the Site perimeter, two on the downwind and one on the upwind side of the Site, as determined by a wind direction indicator at the start of each work day. Stone presumes the prevalent wind direction at the Site is westerly and that the downwind side of the Site will be along East Street. Based on this scenario, dust monitors will be deployed as depicted on Figure 2. The actual dust monitor configuration will depend on daily wind conditions. Measured upwind concentration will be subtracted from downwind concentration to determine the net ground level (NGL) concentration. The NGL will be compared with the target air concentration (120 $\mu g/m^3$). Background dust concentrations will be measured using the monitor at the beginning of each day prior to the initiation of any work activities. The background value will be noted on the daily logbook and used to determine whether dust concentrations require additional actions.

One tripod mounted dust monitor will be setup within a minimum of twenty five feet of the active work zone to monitor potential COC exposure to Site workers.

4. QUALITY ASSURANCE/QUALITY CONTROL

4.1. Documentation and Records

Thorough documentation of project activities will be conducted during this monitoring effort. The main areas of documentation are field log notebooks, electronic monitoring data downloads, and inspection forms (Appendix B). Any corrective actions must be documented. Corrective actions may include, but not be limited to, monitoring equipment repairs or calibrations and alterations to dust suppression techniques. Photographs will be taken daily to document the construction activities occurring at the Site.

Field operation records include field logbooks, operator checklists, and maintenance logbooks. Monitoring data include all air monitoring readings collected through the duration of the project. These records will be submitted to the Vermont Department of Environmental Conservation (VT DEC) as part of the Remedial Action Report prepared at the conclusion of the project.

4.1.1. Quality Control

Stone will maintain a file of Site information that will include visit logs, air monitoring equipment calibration data, and a maintenance log. Copies of this documentation will be retained in the project files. The air monitors and weather station will be inspected and calibrated in accordance with the manufacturer's recommendations. Specific tasks for periodic testing, inspection, and maintenance are required for the air monitoring equipment to provide sufficient quality control to remain within the manufacturer's operating specifications, and ensure that the project air monitoring goals are met. The maintenance tasks for each type of equipment are summarized below as recommended by the manufacturer.

- TSI Dust Trak 8532 – The impactor head will be cleaned and a zero check will be performed daily before use. The inlet will be cleaned and internal filters replaced at least every 350 hours (based on a concentration of 1 mg/m^3) or as needed.
- Weather Station Maintenance – The weather station does not require calibration according to the equipment manufacturer (Davis Instruments). However, Stone field staff will inspect and the weather station daily to ensure the weather station remains operable. Field personnel will visually correlate the reported wind direction to a wind sock installed adjacent to the weather station. A north/south demarcation will be added to the stand to assist field personnel in evaluating wind direction and will be recorded using a similar quadrant method used by the weather station (i.e., north, northeast, east, southeast, south, southwest, west, and northwest).
- GilAir Sampling Pumps – The flow of the samplers will be calibrated each day samples are collected. Calibration will be conducted with a Bios Defender flow meter. Other maintenance will be conducted as-needed in accordance with manufacturer specifications.

5. SITE ACTION LEVELS

Table 2, below, presents air monitoring action levels and the appropriate response that will be followed during excavation and grading of contaminated soils..

Table 2: 33 South Main Street Monitoring Action Levels

Type	Measurement	Action
Visible	Empirical	If dust is visible in a localized area, suppression methods will be immediately implemented. Perimeter and work zone dust monitors will be then be checked for action level exceedances. Evaluate additional engineering controls.
PM_{10}	Dust readings measured above background at the downwind property boundary or work zone >120 µg/m^3 (TWA 15 minutes)	Cease operations. Identify/mitigate emission source originating from Site. Assess need for more frequent wetting of exposed areas and access roads and/or additional dust suppression methods.
Wind Speed	Wind speed > 25 mph sustained for 5 minutes	Conduct additional dust suppression (e.g. wetting). Cease operations if dust readings measured above background at the downwind property boundary or work zone > 120 µg/m^3 (TWA 15 minutes) with additional dust suppression measures.

Notes:
Based on net ground level concentration (downwind – upwind)
µg/m^3 = Micrograms per cubic meter
PM_{10} = Particulate matter greater than 10 micrometers
mph = miles per hour

6. LIST OF ACRONYMS

µg: microgram
µg/m^3: microgram per cubic meter
B[a]P-TEC: Benzo[a]pyrene toxicity equivalent concetration
C_{air}: Concentration of COC in air (microgram per cubic meter [µg/m^3])
Cs_{oil}: Concentration of COC in soil (milligrams per kilogram [mg/kg])
C_{sl}: Concentration of dust screening level in air (µg/m^3)
COC: Contaminant of concern
cPAH: Carcinogenic polycyclic aromatic hydrocarbon
CVOC: Chlorinated volatile organic compound
EPA: united States Environmental Protection Agency

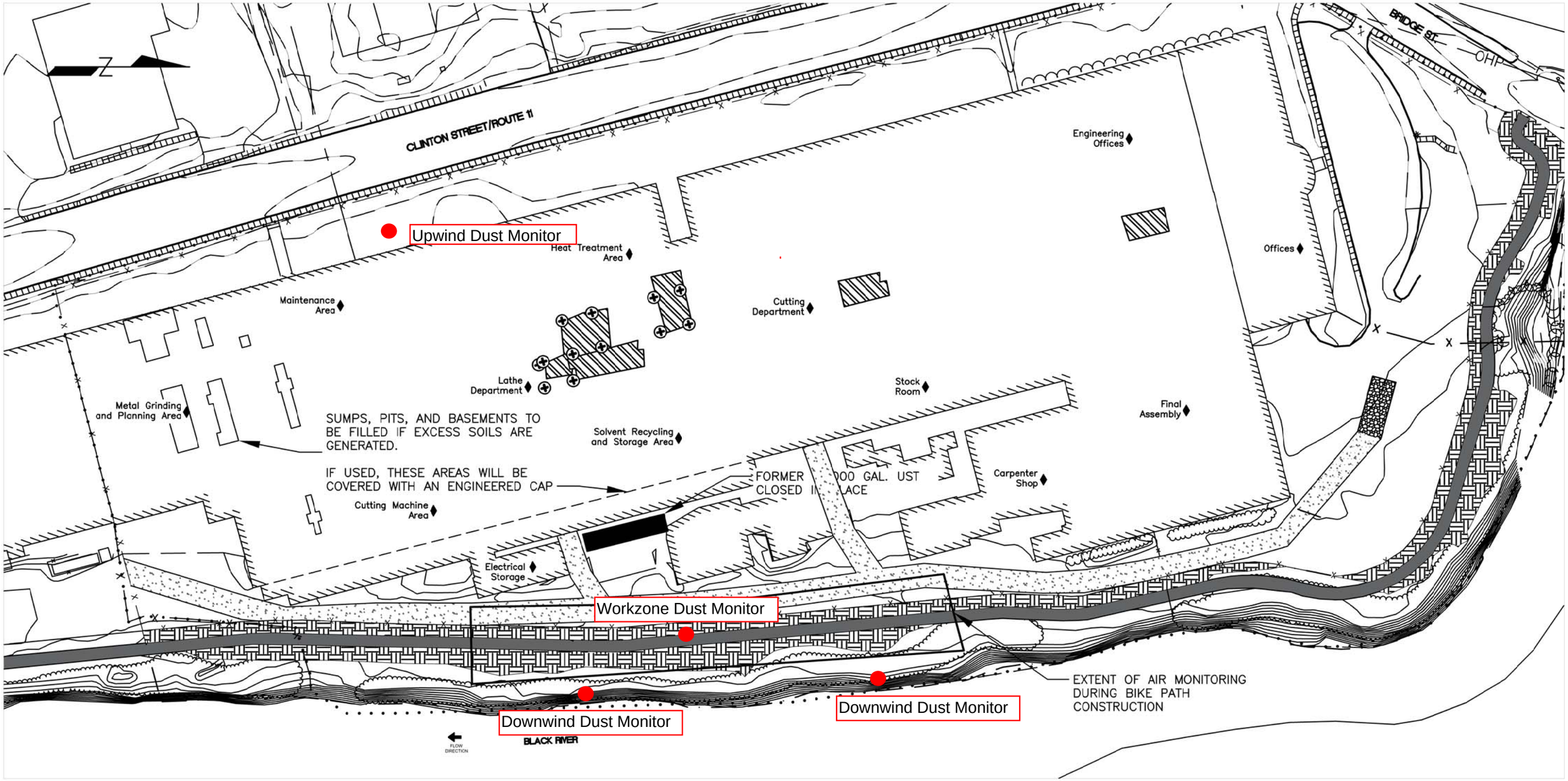
ESA: Environmental Site Assessment
ITRC: Interstate Technology Regulatory Council
MCE: Mixed cellulose ester
mg/m^3: milligram per cubic meter
mm: millimeter
mph: miles per hour
NAAQS: National Ambient Air Quality Standards
NELAP: National Environmental Laboratory Accreditation Program
NIOSH: National institute for Occupational Safety and Health
OSHA: Occupational Safety and Health Administration
PAH: Polycyclic aromatic hydrocarbon
PEL: Permissible exposure limit
PM_{10}: Particulate matter greater than 10 micrometers
TWA: Time weighted average
UCL: Upper confidence limit
VT DEC: Vermont Department of Environmental Conservation

7. REFERENCES

Massachusetts Department of Environmental Protection, 2002. *Technical Update, Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil*, Office of Research and Standards, May 2002.

APPENDICES

APPENDIX A: FIGURES



LEGEND:

- EXISTING BUILDINGS
- TREE LINE
- BUILDING DEMOLITION AREA/FENCE
- BIKE PATH CONSTRUCTION AREA
- INTERIOR BUILDING COLUMNS
- COLUMNS REQUIRING REMEDIAL ACTION
- ASPHALT CAP
- LANDSCAPE CAP
- ENGINEERED CAP
- TEMPORARY DRIVEWAY
- DECONTAMINATION PAD

File: FILE LOCATION

DRAWING CREDITS

Drawn On: DTV
Drawn By: BMD
Checked On: 08/07/2018
Checked By: Initials
Project No.: 15-049

REVISIONS

#	Date	Drwn	Chk'd	App'd	Description

DRAWING SCALE

0 80 160 Feet

STONE ENVIRONMENTAL
535 Stone Cutters Way / Montpelier / VT / 05602 / USA
802.229.4541 / info@stone-env.com / www.stone-env.com

CAPPING PLAN

FORMER JONES & LANSOM PLANT - NORTH PARTIAL CAP

160 CLINTON STREET SPRINGFIELD, VT

FIGURE NO. 4

APPENDIX B: INSPECTION FORMS

STONE ENVIRONMENTAL INC

Weather Observation Log

Project Title		Location	
Client		SEI Study #	
Project Manager		Personnel	

Date/Time	Temperature (°F)	Wind Speed (mph)	Wind Direction	Rainfall (inches)	General Conditions (Sunny, Cloudy, etc.)	Initials

STONE ENVIRONMENTAL INC

Dust Monitoring Log

Project Title		Location		
Client		SEI Study #		
Project Manager		Personnel		
Upwind Dust Monitor Model/SN		Downwind Dust Monitor Model/SNs		Location ID:
				Location ID:
		Work Zone Dust Monitor Model/SNs		Location ID

Date/Time	Dust Monitoring Location ID	Dust Concentration (mg/m^3)	Comments	Initials

Appendix D: Estimated Costs

Estimated Costs for Corrective Action at the Former J&L Facility, 160 Clinton Street Springfield, VT

DETAILED FEE & SCOPE DETAILS

Staff Type	Name	Rate Per Unit	Unit	Amount	Subtotal		Scope Details
Task 1 - Project Coordination							Coordination with SRDC and construction contractor
Professional Services							
Principal/Program Manager		$ 163 / hour	4	$652			Assumes attendance of four pre-construction meetings prior to building demolition and bike path construction and weekly meetings in Springfield during construction for 3 months. Total of 16 meetings, 2 hours plus travel
Senior Professional 1		$ 131 / hour	84	$11,004			
Accountant 2		$ 72 / hour	4	$288			
	Professional Services Summary		*92*		*$11,292*		
							Project Manager and Accountant to prepare monthly invoices, 1 hour per month.
Stone Equipment							
Civic Mileage		$0.54 / Mile	2720	$1,615.68			
	Expense Summary				*$1,616*		
TASK SUBTOTAL						**$12,908**	
Task 2 - Extraordinary Costs for Bike Path Construction							Extraordinary Costs for Bike Path Construction and Long-Term Site Stabilization. Cost for construction of Bike Path and Demolition of Building are provided by others.
Professional Services							
Senior Professional 1		$ 131 / hour	12	$1,572			
Project Professional 1		$ 102 / hour	520	$53,040			Project Proffessional to mark the locations for engineered caps within the building prior to demolition. Markout will additionally identify the 12 columns are are to be treated as PCB remediation waste. Oversight to occur for the entirety of the bike path construction.
	Professional Services Summary		*532*		*$54,612*		
Consultants*							
Soil Excavation		$ 26.68 / cy	2200	$64,566			Materials and equipment costs estimated using the VTrans 2 year averaged price list.
Fencing		$ 19.24 / lf	3,100	$65,608			
Fence Screen		$ 5.00 / lf	3100	$17,050			
Installation of soil in to Site Voids		$ 26.68 / cy	2200	$64,566			Assumes PCB warning signs will be placed ~every 40-feet.
	Consultant Summary				*$211,790*		
							Dust monitoring asusmes 4 units will be used for 4-weeks during bike path construction.
Expenses							
Dust Monitoring		$ 390.00 / week/unit	16	$6,864			Oversight by Project Engineer for duration of work on bike path. Daily visits for 1 month for construction of contaminated soil section and twice weekly visits for remainder of 3 month construction. Assumes 52 total trips, 10 hours each including travel.
PCB Warning Signs		$ 12.20 / unit	75	$1,007			
Tacoma Mileage		$ 0.54 / Mile	8840	$5,250.96			
PPE		$ 15.00 / day	52	$858			
Weather Station		$ 250.00 / week	4	$1,100			
Miscallaneous Expenses		$ 500.00 / ls	1	$550			
	Expense Summary				*$15,629*		
TASK SUBTOTAL						**$282,031**	
Task 3 - Allowance for Soil Disposal (500 Cubic Yards / 750 tons)							This task is contingent upon excess soil being generated following filling Site voids. For the purpose of this cost estimate 500 cubic yards of soil will be used for the contingent task.
Professional Services							
Senior Professional 1		$ 131 / hour	4	$524			
	Professional Services Summary		*4*		*$524*		Since Stone staff will be on-Site during bike path construction. no additional time is needed to coordinate work associated with soil disposal.
Consultants*							
AMRO - Waste Characterization Samples		$ 700.00 / sample	3	$2,310			
	Consultant Summary				*$2,310*		Up to three waste characterization samples will collected and analyzed for PCBs, RCRA 8 Metals, VOCs, SVOCs, TPH-DRO, Ignitability, Reactivity, Corrosivity. (For soil disposal approval, two samples are required for the first 350 cubic yards of soil and one sample is required for every 350 cubic yards thereafter.)
External Expenses							
Soil Transportation and Disposal		$ 100.00 / ton	750	$82,500			
	Expense Summary				*$82,500*		Transportation and Disposal costs assume the material will be disposed of as solid waste at a lined landfill. Costs have the potential to change pending waste characterization analysis.
TASK SUBTOTAL						**$85,334**	
Task 4 - Iterim Remedial Action Report							Draft interim corrective action completion report in accordance with VT DEC I-Rule document. Includes Professional Engineer review and stamp.
Professional Services							
Senior Professional 1		$ 131 / hour	6	$786			
Senior Professional 3		$ 153 / hour	16	$2,448			
Project Professional 1		$ 102 / hour	46	$4,692			
Staff Professional 1		$ 84 / hour	16	$1,344			
Accountant 2		$ 72 / hour	1	$72			
	Professional Services Summary		*85*		*$9,342*		
TASK SUBTOTAL						**$9,342**	
PROJECT TOTAL						***$389,615***	

**Stone Environmental's standard mark-up on all Consultant and reimbursable project expenses is 10%.*