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1.0 ASBESTOS ASSESSMENT

1.1 INTRODUCTION

An asbestos assessment was conducted throughout at the former Chapman Valve factory site located on Pinevale Street in Springfield, Massachusetts. The asbestos assessment was performed to identify asbestos containing insulation and building materials that may have remained onsite or were left in place when the former foundry buildings were demolished (i.e. sub-grade structures), and to identify asbestos debris in the soil. This survey was performed in accordance with the Environmental Protection Agency (EPA) National Emission Standard for Hazardous Air Pollulants (NESHAP) regulation.

The asbestos assessment determined the presence, location and approximate quantity of asbestos insulation and building materials. Fifty-four (54) bulk samples of suspected asbestos containing materials (ACM) were submitted for asbestos identification, classification and quantification. Many of the building and insulation materials were considered homogenous throughout the site. For example, numerous pieces of asphalt roofing and resilient floor tile debris were observed mixed throughout the soil surface. The analytical results are attached in Appendix A and are summarized in the attached Tables.

1.2 METHODOLOGY

Representative bulk samples of building materials and insulation products were collected from homogenous debris areas and submitted for bulk asbestos identification by Polarized Light Microscopy (PLM). EMSL Analytical Services Inc. of Westmont, New Jersey was selected to perform the analytical services. They are an AIHA/NVLAP accredited asbestos laboratory, and are licensed by the Massachusetts Department of Labor and Industries. Homogenous debris areas were based on the location on the site and were visually inspected for color, texture and application of the building component. The majority of the assessment was performed on the surface (i.e. above the concrete slab level of the former buildings) level. Construction debris piles and soil piles were examined to the ground level of the former building slab(s). The soil piles were examined with the use of an excavator to determine the consistency and homogenous nature of building and asbestos debris.

Sub-grade exploration was limited to the boiler room and to the main north/south utility tunnel. These areas were exposed using a mechanical excavator and examined for building materials and asbestos debris.

1.3 SITE HISTORY

The former Chapman Valve factory buildings were demolished in 1996. The buildings were demolished to grade and all concrete slabs and foundations were left in place. The basements, utility tunnels, machine pits, and other sub-grade structures were left in place. At the time of the demolition one section of utility tunnel that extends from the north end of the former boiler plant had the asbestos pipe insulation removed. According to an ATC Associates memorandum discovered in the MassDEP file search, ATC personnel along with Zamora Construction inspected the full length of the north/south utility tunnel for potential hazards and backfilled all openings. There was no mention of any asbestos containing materials remaining in the utility tunnel.

The Crane Company subsequently sold the former Chapman Valve Pinevale Street Factory site. Since that time building and construction debris has been observed to have been brought onto the former Chapman Valve site. A large quantity of soil that is mixed with construction debris has also been observed to have been brought onto the former Chapman Valve site.

1.4 SITE ASSESSMENT

The site assessment included a walkthrough of the entire site and a visual assessment and examination of building debris materials. The site is overgrown with brush, vegetation, and small to medium size trees. There are several areas where building demolition materials have been deposited. These are relatively large areas that contain wood framing members, plaster, wire lath, conduit, roofing materials, resilient floor covering, ceramic tile, transite debris, brick and concrete. These debris piles were examined and asbestos containing building materials were identified in the debris.

Large quantities of soil in piles are located along the Pinevale Street side and along the northern end of Building #25. The soil piles were visually examined and construction debris was found to be mixed in with the soil. Bricks, concrete, and asphalt are located in the soil piles along with asphalt roofing, resilient floor tile, transite debris and other building materials. A mechanical excavator was used to assess the depth of the piles and building debris.

The mechanical excavator was also used to access the basement level of the former boiler room, the north/south main utility tunnel and the soil debris located along the north end of Building #25. The excavation of these areas identified a significant quantity of various building materials. These materials included brick, concrete, steel beams, machine and equipment components, roofing materials, transite debris and wood debris.

1.5 BULK ASBESTOS SAMPLNG

Representative bulk samples of suspect building materials were collected from the ground surface and from the areas accessed using the mechanical excavator. The representative bulk samples of building materials and insulation products were collected from the construction debris piles, soil piles from test pits, and from ground surface. The samples were collected from what are considered homogenous materials and debris piles by were collected by David G. Abad (MA License #AI-71927) and Robert Kirchherr, CSP (MA License #AI-70443) of O'Reilly, Talbot and Okun, Associates, Inc. (OTO). The debris samples were submitted for bulk asbestos identification by Polarized Light Microscopy (PLM). EMSL Analytical Services Inc. of Westmont, New Jersey (EMSL) was selected to perform the analytical services. EMSL Analytical is an AIHA/NVLAP accredited asbestos laboratory, and are licensed by the Massachusetts Department of Occupational Safety. Homogenous building debris components were visually classified based on color, texture, application, the building component and their location on the site.

The results of the bulk sampling have identified that the building debris components contain asbestos fibers. The asbestos containing materials identified during our sampling include transite pipe and transite panels, black building construction paper, black pipe insulation, various roofing materials, resilient floor tiles and adhesive mastic.

1.6 CONCLUSION

Asbestos containing debris materials and asbestos containing building materials are located in the construction debris piles, the soil piles, the former boiler room basement and in the north/south utility tunnel. The asbestos containing debris materials are consistently and homogenously mixed with the construction debris and soil making it impossible to feasibly isolate and separate the material. Some of the asbestos containing debris is the size of a quarter and scattered throughout the piles. Although a representative sample was collected of each suspect material at each site, there were numerous pieces of the suspect material in the same area. The EPA requires that a homogeneous area be determined to contain asbestos containing materials based on the finding if at least one sampled collected from that area shows that asbestos is present in an amount greater that one percent (>1%). The results of the visual assessment and bulk sampling have identified asbestos containing materials in homogenous debris and soil piles at the site. As a result, the construction debris and soil pile are classified as asbestos containing debris and will require removal and disposal as asbestos containing debris waste in accordance with the EPA and MassDEP regulations.

1.7 ASBESTOS ABATEMENT RECOMMENDATIONS

The EPA and MassDEP require proper removal and disposal of asbestos containing soil and debris. These materials require removal from the site and disposal of the materials at an EPA asbestos landfill. We have provided estimated removal and disposal costs based on similar projects recently performed in the Springfield, Massachusetts area.

We have estimated that there is approximately 33,474 cubic yards of construction debris and soil that is contaminated with asbestos. Of this quantity approximately 3,112 cubic yards are from the boiler room basement and the main north/south utility tunnel. The remaining quantity of soil and debris is located above grade (i.e. existing concrete building slabs). In addition, of the 33,474 cubic yards of construction debris and soil, approximately 1,850 cubic yards of the debris is considered non soil or asphalt, brick, concrete (ABC materials) construction materials that is contaminated with asbestos debris.

Option 1

The 33,474 cubic yards of soil and construction debris are estimated to weigh approximately 50,211 tons. Based on this weight we estimate that 2,282 transport loads of waste will be required at a total transportation and disposal cost of $6,846,000. This work is expected to take approximately 60 work-days to complete. An additional daily cost for asbestos abatement, equipment operators and truck loaders, and industrial hygiene air monitoring costs is estimated at $4,600 per day for a total of $240,000. The total cost for removal of the asbestos containing construction debris and soil is $7,122,000. A 20% project contingency is added for a total cost of **$8,546,400**.

Option 2

It is our understanding that this site may be regulated under the MassDEP 21-E regulations and not the MassDEP Asbestos regulations. If this is the case, with MassDEP approval it may be possible utilize the former Chapman Valve Oak Street landfill for disposal of some of the asbestos containing construction debris and soil debris. Although there will need MassDEP and Crane Company approval for the Oak Street Landfill to be used for this material is will have major cost advantages. As identified above, the major cost is the transportation and disposal costs as asbestos containing debris. The non soil and ABC construction materials contaminated with asbestos will require disposal at an EPA asbestos landfill.

Using this option, if approved, it is estimated that the costs for transportation and disposal of the 47,436 tons of asbestos soil and ABC waste will require 2,635 loads. The local transportation will be performed using approximately 5 dump trucks and a loader

and dozer at each site. Using this method will reduce disposal and transportation costs to approximately $493,500. based on a 35-workday project estimate.

The disposal of the 2,775 tons of non soil and ABC asbestos containing construction debris will be at a EPA asbestos landfill. It is estimated that the disposal of this construction debris will require 126 transport loads at a disposal cost of $378,000. This work is expected to take approximately 6 work-days to complete. An additional daily cost for asbestos abatement, equipment operators and truck loaders, and industrial hygiene air monitoring costs is estimated at $4,600 per day for a total of $27,600.

The total cost for removal of the construction debris and soil using the Oak Street Landfill option is $874,260. A 20% project contingency is added for a total cost of **$1,049,112**. There may be additional costs associated with permitting, Activity Use Limitations and MassDEP approval that are not included in these disposal costs.

Option 3

Option 3 will also require the approval of MassDEP and also assumes the site is regulated under the MassDEP 21-E regulations. This option is to relocate the asbestos containing construction debris and soil throughout the site and relocate it in a section of the Pinevale Street site (i.e. along the Goodwin Street retaining wall) as an Activity Use Limitation (AUL) in accordance with the MassDEP regulations. This option will limit the future use of the Pinevale Street site. This option will not affect the closure of the Oak Street Landfill and require Crane Company approval.

Using this option, if approved, it is estimated that the costs for transportation and disposal of the 47,436 tons of asbestos soil and ABC waste will require 2,635 loads. The local transportation will be performed using approximately 5 dump trucks and a loader and dozer at each site. Using this method will reduce disposal and transportation costs to approximately $296,100 based on a 20-workday project estimate.

The disposal of the 2,775 tons of non soil and ABC asbestos containing construction debris will be at a EPA asbestos landfill. It is estimated that the disposal of this construction debris will require 126 transport loads at a disposal cost of $378,000. This work is expected to take approximately 6 work-days to complete. An additional daily cost for asbestos abatement, equipment operators and truck loaders, and industrial hygiene air monitoring costs is estimated at $4,600 per day for a total of $27,600.

The total cost for removal of the construction debris and soil using the Pinelvale Street AUL option is $701,700. A 20% project contingency is added for a total cost of **$842,040**.There may be additional costs associated with permitting, Activity Use Limitations and MassDEP approval that are not included in these disposal costs.

TABLE 1

CHAPMAN VALVE
BULK ASBESTOS RESULTS

SAMPLE	LOCATION	RESULT
C-01	Roofing Material Waypoint #82	None Detected
C-02	Gray Fiberboard Material Waypoint #82	None Detected
C-03	Roofing Material Waypoint #82	None Detected
C-04	Black Cementitious Material Waypoint #82	30% Chrysotile Asbesos
C-05	Asphalt Type Paver Waypoint #82	None Detected
C-06	No Sample Submitted	----
C-07	Black Building Paper Waypoint #83	40% Chrysotile Asbesos
C-08	Gray Cementitious material Waypoint #83	30% Chrysotile Asbestos
C-09	Light Weight Concrete Waypoint #83	None Detected
C-10	Gray Cementitious Material Waypoint #83	30% Chrysotile Asbestos
C-11	Light Weight Concrete Waypoint #84	None Detected
C-12	Plaster on Wire Lath Waypoint #85	None Detected
C-13	Black Construction Paper Waypoint #85	None Detected
C-14	Wood Block Adhesive Waypoint #85	None Detected
C-15	Black Pipe Insulation Waypoint #85	2% Chrysotile Asbestos
C-16	Black Pipe on Concrete Waypoint #85	2% Chrysotile Asbestos
C-17	Light Weight Concrete Waypoint #86	None Detected

TABLE 1 (continued)

CHAPMAN VALVE
BULK ASBESTOS RESULTS

SAMPLE	LOCATION	RESULT
C-18	Roofing Material Waypoint #87	8% Chrysotile Asbestos
C-19	Yellow Concrete Plaster Waypoint #87	None Detected
C-20	Gypsum Light Weight concrete Waypoint #87	None Detected
C-21	Roofing Material Waypoint #87	None Detected
C-22	Tan Floor Tile Waypoint #87	None Detected
C-23	Orange Brick Pavers Waypoint #87	None Detected
C-24	Ceramic Tile Grout Waypoint #88	None Detected
C-25	Soft Concrete Waypoint #88	None Detected
C-26	Roofing Material Waypoint #88	None Detected
C-27	Floor Tile Waypoint #88	None Detected
C-28	Floor Tile & Mastic Waypoint #89	8% Chrysotile Asbestos
C-29	Floor Tile & Mastic Waypoint #89	None Detected
C-30	Floor Tile & Mastic Waypoint #89	20% Chrysotile Asbestos

TABLE 1 (continued)

CHAPMAN VALVE
BULK ASBESTOS RESULTS

SAMPLE	LOCATION	RESULT
1208-01	Roofing Material Waypoint #90	None Detected
1208-02	Roofing Material Waypoint #91	None Detected
1208-03	Roofing Material Waypoint #91	None Detected
1208-04	Roofing Material Waypoint #91	None Detected
1208-05	Roofing Debris Waypoint #91	None Detected
1208-06	Floor tile Waypoint #100	5% Chrysotile Asbestos
1208-07	Roofing Material Waypoint #101	None Detected
1208-08	Roofing Material Waypoint #101	None Detected
1208-09	Roofing Material Waypoint #102	10% Chrysotile Asbestos
1208-10	Roofing Material Waypoint #103	None Detected
1208-11	Roofing Material Waypoint #104	None Detected
1208-12	Roofing Material Waypoint #105	None Detected
1208-13	Roofing Material Waypoint #105	None Detected
1208-14	Roofing Material Waypoint #106	None Detected
1208-15	Roofing Material Waypoint #106	2% Chrysotile Asbestos
1208-16	Floor Tile & Mastic Waypoint #107	10% Chrysotile Asbestos
1208-17	Floor Tile Waypoint #107	10% Chrysotile Asbestos

TABLE 1 (continued)

CHAPMAN VALVE
BULK ASBESTOS RESULTS

SAMPLE	LOCATION	RESULT
1208-18	Cementitious Material Waypoint #107	None Detected
1208-19	Linoleum Flooring Waypoint # 108	None Detected