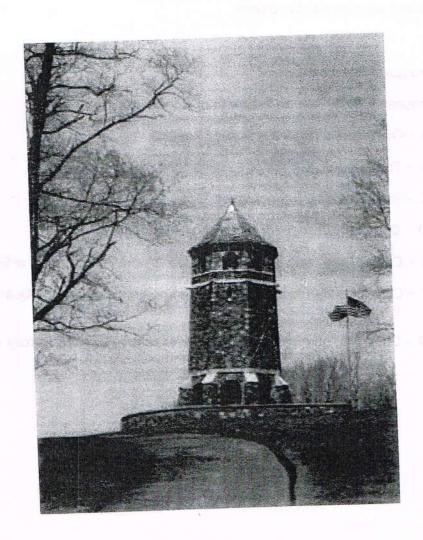
# EXISTING CONDITION SURVEY HII Tower SCOPE OF PROPOSED RESTORATION WORK

**FOR** 

## MEMORIAL TOWER AT FOX HILL VERNON, CT

October 9, 2003



HUBBARD & ASSOCIATES ARCHITECTS LLC 159 Hubbard Street, Middlefield, Ct 06455

## MEMORIAL TOWER AT FOX HILL VERNON, CT

#### TABLE OF CONTENTS:

| Introduction  | Pages 2 - 3   |
|---|---------------|
| Existing Architectural Conditions                             | Pages 4 - 30  |
| Existing Mechanical/Electrical Conditions                     | Pages 31 - 33 |
| Existing Site Conditions                                      | Pages 34 - 36 |
| Existing Hazardous Material Conditions                        | Page 37       |
| Conclusion  | Page 38       |
| Existing Structural Conditions                                | Pages 39 - 40 |
| Scope of Proposed Work with an Estimate of Construction Costs | Pages 41 - 44 |
|   |               |

Appendix A - "Hazardous Materials Survey Report"

Appendix B - Topographic Survey of Existing Site

Appendix C - Proposed Site Improvement Plan

Appendix D - Copy of a description of the Tower dated 8-3-34\*

Appendix E – Copy of the Program of Dedication for the Tower dated 8-5-39\* (two pages)

Appendix F – Copy of a *Hartford Courant Magazine* article about the Quarry which supplied the stone for the Tower dated 1-24-65\*

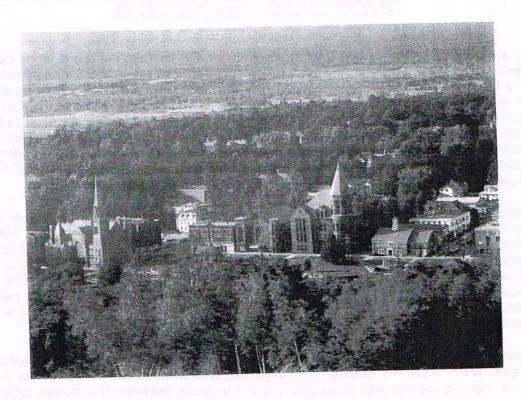
Appendix G - Copy of a photograph of the Tower taken by Owen Darcey c. 1939\*

## MEMORIAL TOWER AT FOX HILL VERNON, CT

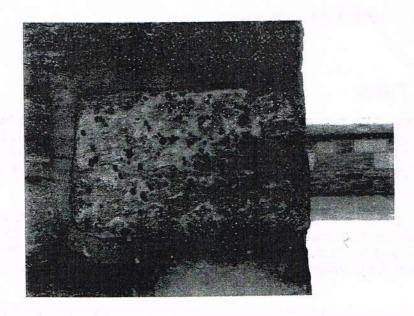
#### INTRODUCTION:

The Memorial Tower at Fox Hill is a monument built in the late 1930's to honor the men and women from Vernon who have served their country. The Tower, a W.P.A. project which cost \$70,000, was dedicated on August 5, 1939. According to the Architect, Walter B. Chambers, FAIA, "the design of the Memorial Tower was suggested in part by an old Romanesque church in France near Poitiers".

The Tower sits on top of a hill in Henry Park, a Town park open to the public from dawn to sunset. The views from the Promenade and Tower are spectacular. It's possible to see north to Mt. Tom in Springfield, MA and south to Meriden, CT. The historic Rockville section of Vernon is nestled below in the Hockanum River valley and hillside to the north of the Tower. (See photo below).



The Tower is an octagonal stone tower with stone buttresses sitting on a stone platform with limestone accent stones and a slate roof that is approximately 55 feet tall. There is a semi-circular Promenade with stonewalls surrounding the Tower with a one hundred and ninety foot long flagstone Walk with stonewalls leading to the Promenade. The 1,800 tons of stone used to build the Tower and stone walls along the Promenade and Walk were quarried in neighboring Tolland CT (see Appendix F) and are "jewel building stones", named for the garnets found within the stones. (See photo on next page for an example of the stone).



There are two purposes for this Report. One purpose is to describe the existing conditions that are present at the Tower and the Site. The other purpose is to provide a Scope of Work required to restore the Tower and to provide accessibility for the disabled, parking, lighting and other site improvements. Hubbard & Associates first viewed the Tower in the fall of 2002 and made several visits during the spring and summer of 2003. We observed additional damage to the Tower in the months between fall and spring due to weather and vandalism. The winter of 2002/3 was a particularly difficult one with a considerable amount of snowfall. Spring and summer 2003 were unusually rainy and damp. These weather conditions have increased the rate of deterioration in the problem areas at the Tower.

Our last site visit was on September 29, 2003, a sunny day after a day of heavy rain. The exterior of the Tower was dry, however, we observed wet conditions in several places: There was water dripping from several arches at the first level of the Tower onto the concrete steps below. This dripping has left salt deposits not only on the underside of the arches, but on the steps as well, which wasn't noticeable in earlier site visits. There were also wet areas along the exterior wall of the interior stairs from the second to third levels of the Tower. Obviously, any water that penetrated the exterior walls the day before was finding its way out. As such, the conditions at the Tower are continuing to deteriorate at an accelerating pace.

In general, the Tower is in good condition, but is suffering from continuing moisture and drainage problems, which have led to loose mortar joints, structural cracks in the mortar joints, extensive areas of missing mortar with moss growing in the joints between the stones, efflorescence of salts, and peeling of the interior coating. There are also other problem areas that need to be addressed and are described in this Report.

In addition, there is no accessibility for the disabled at the Tower, Promenade, Walk or Site, limited parking, inadequate site lighting, and inadequate signage to direct visitors to the Tower.

The Proposed Scope of Work recommends the work that needs to be done at the Tower, Promenade, Walk and Site to rectify the problem areas, to make Site improvements, and to provide accessibility where feasible. While it would be more cost effective to do the Proposed Work in one large project, the Work can be done over time in a series of smaller projects if necessary.

159 Hubbard Street, Middlefield, CT 06455 Phone/Fax: 860-349-8930 www.hubbardassoc.com

## MEMORIAL TOWER AT FOX HILL VERNON, CT

#### **EXISTING ARCHITECTURAL CONDITIONS:**

#### IN GENERAL:

The condition of the Tower is fairly good for its age. It is suffering from on-going weather and moisture related problems.

The Tower, Promenade and Walk don't meet current Codes, nor is there any accessibility for the disabled. However, The Town intends to nominate the Tower to the National List of Historic Places, which will help to dictate what can and cannot be altered at this monument in the future.

The following conditions were observed firsthand during site visits over the course of several months. Hubbard & Associates and Michael Sirak, PE were able to view portions of the Tower and roof from the boom of the Town's fire truck, and have made judgments applying to the entire structure based on the portion we were able to inspect. Original construction documents for the Tower were unavailable.

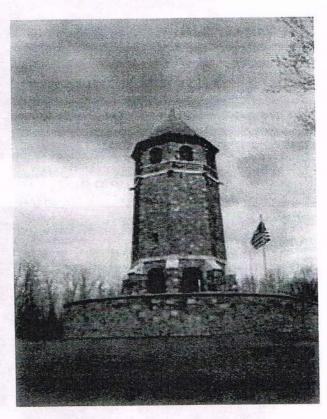


Photo A

The walls of the Tower and the walls around the Promenade and Walk are made of the "jewel building stones" as described in the Introduction. The Tower has four floors in the interior and is approximately 60 feet tall measured from the first floor to the apex of the roof. At the

fourth, and highest, level is an Observation Room. The first level is comprised of inner octagonal stone walls set in from outer octagonal stone walls with arched openings that support the second to fourth floors of the Tower walls (See Photos B, D, E, and F below). As such, a portion of the floor extends past the inner walls and connects to the outer walls and is exposed to the exterior (See section below on Floor/Ceiling Construction). There are stone buttresses at the eight intersections of the walls at the first level. The buttresses have granite capstones and end in height at the second floor, which is ringed with a band of granite trim (See Photos A above and B below). There is extensive efflorescence at the buttresses and arches, which have led to heavy salt deposits at the underside of the arches (See Photos B, C and D below).

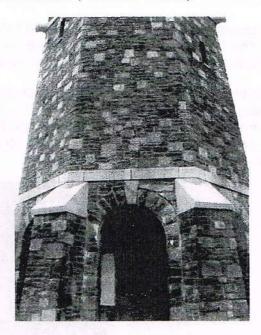


Photo B

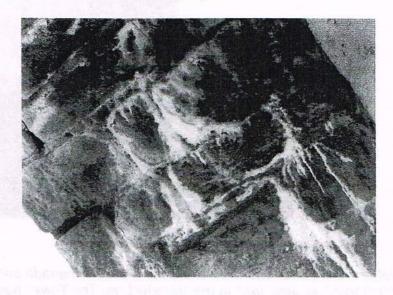


Photo C

159 Hubbard Street, Middlefield, CT 06455

Phone/Fax: 860-349-8930

www.hubbardassoc.com

There are granite steps below each arched opening that lead from the Promenade around the Tower to an octagonal flagstone walk between the inner and outer Tower walls. The steps are 5 foot wide at the arch and are comprised of three risers at approximately 6 inches and three treads at 12 inches. There are cracks in the steps and little mounds of salt deposits here and there due to water dripping from the arches above (See Photos D and E below). The salt deposits should be removed from the arches and steps. The mortar joints at the arches should be raked and repointed with mortar to match the original mortar. The cracks in the steps should be repaired with an epoxy injection or replaced. There are no railings at these steps as required by Code.



Photo D

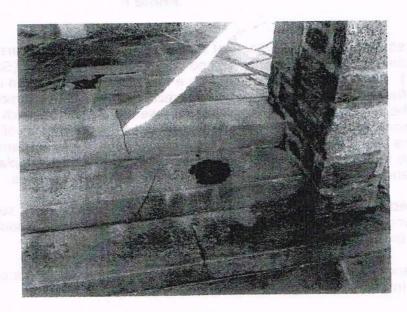


Photo E

The flagstone walk between the inner and outer first floor walls is in poor condition. The flagstones are multi-colored, irregular in shape and are laid in a random pattern in a concrete setting bed. Some of the flagstones are loose or missing. There have been sloppy, inappropriate repairs to this surface in the past, which have been unsuccessful in treating the underlying problems. The surface doesn't pitch well to the steps, which is the only route that water has to exit the platform. The entire flagstone surface should be removed and replaced with a new surface material that is easier to walk on and pitched correctly for drainage. (See Photo E above and Photo F below).

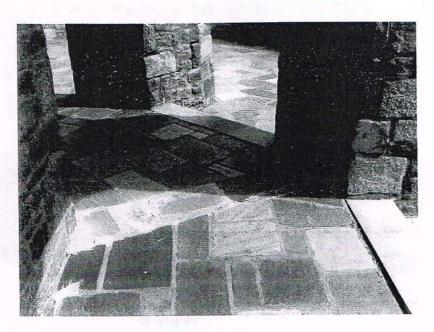


Photo F

Located on three of the octagonal inner walls at the first floor are painted rectangular sections of concrete wall with bronze arched plaques mounted above (See Photos D above and G and H below). (There is an entrance door on a fourth wall - see section on Doors/Windows below). There is a different inscription inset into each rectangular section (Democracy, Justice, and Freedom). The arched bronze plaques each represent a different branch of the military (Army, Navy and Marines – See Photo H below). According to the description of the Tower in Appendix D, these sections should be bronze tablets with "military and naval emblems, dates and lists of the men in whose honor the Memorial Tower is erected". Apparently, the plaques with the names of servicemen and women were never installed below the arched plaques.

The rectangular sections of wall should have the existing paint surface removed. There is an area below one section that has white stains on the stone wall that should be cleaned (probably spilled paint that was wiped off - See Photo G below).

If financially feasible, bronze plaques with the names of service people should be installed as originally intended below the bronze arched plaques.

159 Hubbard Street, Middlefield, CT 06455 Phone/Fax: 860-349-8930 www.hubbardassoc.com Page 7

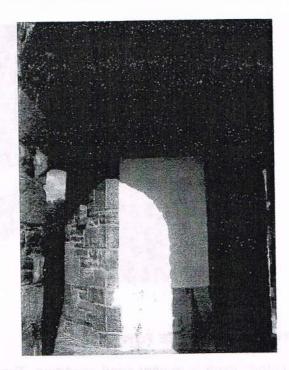
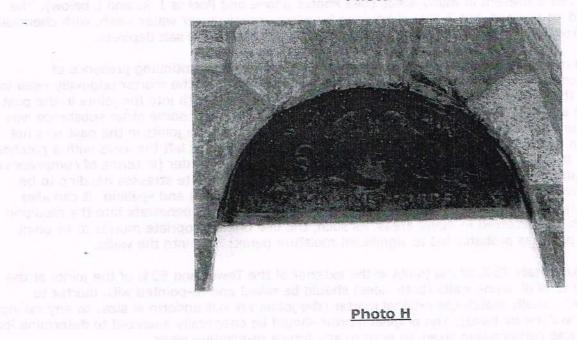


Photo G



There are granite bands circling the Tower in three locations: one at the window sill level of the arched windows at the top of the Tower, one at the fourth floor incorporating granite gutters leading from through-wall drains at the interior side of the floor (See Photo I below), and one at the top of the buttresses (as previously described). The gutters don't appear to provide any purpose, since the fourth floor of the Tower is enclosed from the weather. The gutters are lined with lead-coated copper flashing which should be replaced.



Photo I

#### EXTERIOR MASONRY WALLS AT THE TOWER:

In general, the stone itself is in very good condition. There is some staining on the walls with efflorescence present in many areas (See Photos above and Photos J, K, and L below). The Tower should be cleaned, but it should be done by a low impact power water wash, with chemical cleaners utilized only where necessary to remove stubborn stains and salt deposits.

Many mortar joints in the walls are deteriorating due to the continuing presence of moisture, some with moss actually growing within the joint. Much of the mortar originally used for the joints in the walls has been removed and re-pointed to some depth into the joints in the past – the last time in 1986. The re-pointing work was sloppy and mortar or some other substance was left on the building in some locations. The mortar used to re-point the joints in the past was not compatible in terms of color and mix with the original mortar and has left the walls with a patched appearance. It's also probable that this past re-pointing mortar is harder (in terms of compressive strength) than the original mortar. The use of harder mortar can create stresses needing to be relieved within existing masonry walls, leading to permanent cracking and spalling. It can also break the bond between the mortar and the stone, allowing water to penetrate into the resulting cracks, which has occurred in many areas. As such, the use of inappropriate mortar to re-point joints in the past has probably led to significant moisture penetration into the walls.

Approximately 75% of the joints at the exterior of the Tower and 50% of the joints at the Promenade and Walk stone walls (both sides) should be raked and re-pointed with mortar to physically and visually match the original mortar (the joints are not uniform in size, so any raking will need to be done by hand). The original mortar should be chemically analyzed to determine its components and compressive strength prior to any future re-pointing work.

Photos J, K and L below illustrate many of the problems associated with the exterior stone walls at the Tower. Notice the efflorescence in several locations, the lumpy appearance of the mortar due to sloppy re-pointing work in the past, the moss growing in the joints, and the spalling joints in several locations. Also notice mortar missing in joints, cracks between the stones and surrounding mortar joints demonstrating the loss of bonding between the materials, and the rust

stains on the granite bands. There does not appear to be any flashing above the granite bands as typically used to drain water out of a masonry wall.

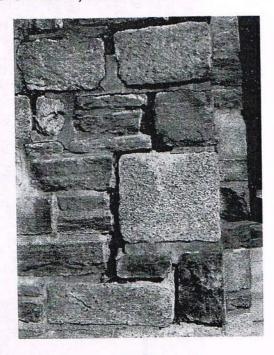


Photo J

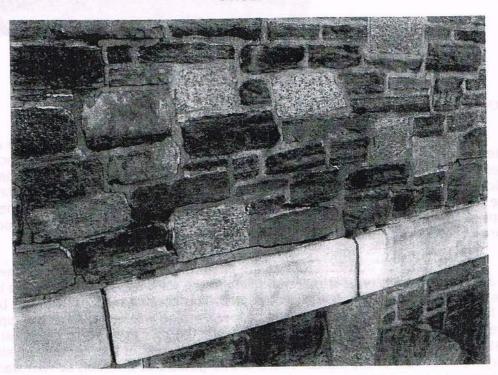


Photo K

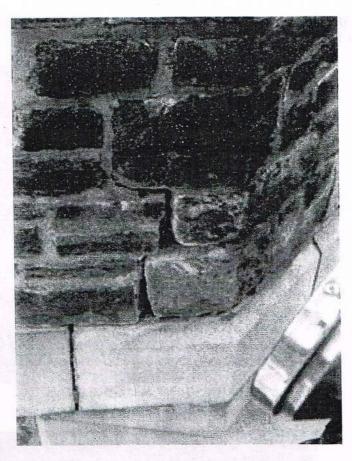


Photo L

#### ROOF:

The Tower Roof is an octagonal slate roof with a beacon light set in a metal cap at the apex. The slates are in relatively good condition but are 65 years old and approaching the end of their lifespan. The slates vary in thickness from about 2 inches thick at the fascia to about ¾ inches thick at the apex. Thicker slates were installed moving down towards the fascia to prevent uplift of the slates during high winds. There is a starter course of slate shingles. There is a granite band with dentils at the intersection of the roof and exterior stone wall with an oak trim board at the upper edge. The joints in this band should be raked and re-pointed.

The shingles butt together at the hip intersections of the sides of the roof. There is a coating of a roofing cement type of material filling in the joint between the shingle intersections in some areas, indicating a possible leak in the past. This coating material was not tested for the presence of hazardous materials. Lead coated copper flashing was installed at the hip intersections in overlapping courses under the shingles. While the roof appears to be sound at this time, a new slate roof should be installed as part of any restoration of the Tower, and should copy the existing varying thickness of the slates. There are no gutters at the roof, so rain washes down onto the Promenade approximately sixty feet below. See Photos M, N, & O below for views of the slate roof.

159 Hubbard Street, Middlefield, CT 06455

Phone/Fax: 860-349-8930 www.hubbardassoc.com



Photo M



Photo N



Photo O

The ceiling of the roof is open to the Observation Room at the fourth floor of the Tower, and does not appear to be stained due to any obvious recent leaks. The roof structure is comprised of exposed oak decking supported by an exposed oak truss at each wall intersection that connects to an octagonal oak compression ring in the center of the Tower (See Photo P below). There is a flat panel hatch in the ring that leads to a low attic area in the peak of the roof. We were unable to access this attic area. The height of the underside of the compression ring is approximately 16 feet from the floor of the Observation Room. The ceiling is in good condition. There is one truss that has separated slightly from the decking, but doesn't appear to be creating any unsound conditions (See Photo Q below and the section on Existing Structural Conditions).

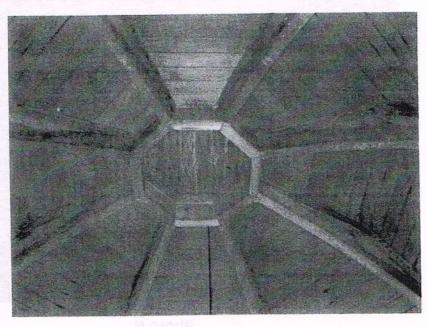


Photo P

159 Hubbard Street, Middlefield, CT 06455

Phone/Fax: 860-349-8930 www.hubbardassoc.com

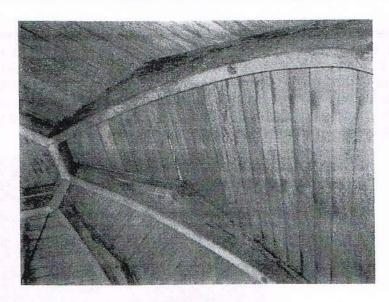


Photo Q

#### FLOOR/CEILING CONSTRUCTION:

The floors/ceilings of the Tower are approximately 6 inch thick concrete slabs. The second floor overhangs the inner walls of the first floor of the Tower and connects to the outer walls as previously described. As such, there is an exposed exterior arched underside of floor at this level that has a coat of parging covering it. This exterior parging is peeling and flaking off, and at a minimum should be scraped and repaired. This exposed floor contributes to an uneven heat loss situation because part of the floor is exposed to the outside temperature and the rest of the floor is contained within the interior of the Tower and exposed to the interior temperature of the Tower. This condition may result in moisture migration thru the floor, leading to the peeling condition. One solution to this condition could be to try to even out the temperature differential by applying a one inch thick spray-on insulation to this exposed part of the floor, with an application of a type of exterior cemintitious coating covering the insulation. See Photo R below for this condition.

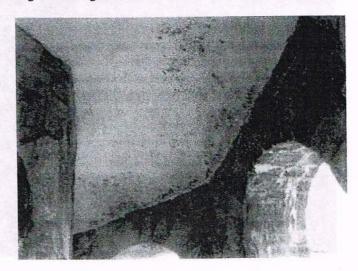


Photo R

159 Hubbard Street, Middlefield, CT 06455

Phone/Fax: 860-349-8930

Page 14

www.hubbardassoc.com

The other floor/ceiling assemblies are contained within the Tower walls. They are in fairly good condition, except for a few areas that need repair work at cracks and areas of spalling. There are rust stains in the ceiling in some areas, indicating that the steel reinforcing in the structure has been exposed to moisture. The floors are painted on the walking surfaces and there is a coating of what appears to be paint on the ceilings. These coatings on the floors/ceilings should be removed in order to better assess the condition of the concrete slabs for needed repair work. See Photos S – Z below for examples of the condition of the floors/ceilings.

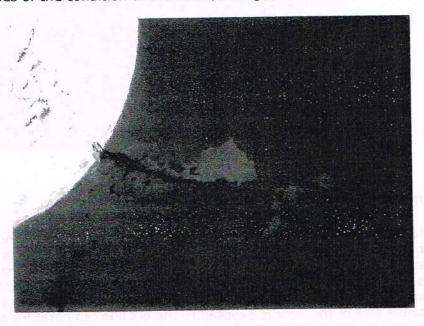


Photo S



Photo T

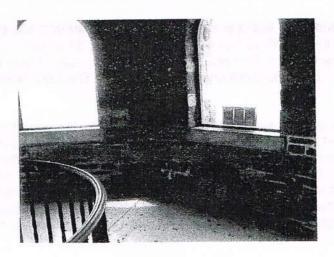


Photo U

Different types of stairs connect the four floors. The first floor is 6-1/2 inches above the flagstone walk between the inner and outer Tower walls. A painted six foot diameter metal circular stair connects the first floor to the second floor. It has 8-1/4 - 8-1/2 inch risers, balusters at every third tread, and a railing at 32-1/2 inches above the treads (See Photo V below). There is just enough room inside the inner walls at the first floor to accommodate the stair. This entire stair is painted with lead-based black paint, which should be encapsulated or removed. It is approximately 12'-7" from the first floor to the second floor. This stair doesn't conform to code.



Photo V

At the second floor there is a circular guardrail around the stairs down to the first floor (See photo W below). This guardrail has a bronze railing at 37 inches high with metal balusters painted with black lead-based paint. The bronze alloy contains lead. There is a clearance of 4-1/4 inches between balusters. This guardrail doesn't meet code. The lead-based paint should be removed or encapsulated.

There is an approximately 47 inch wide cast-in-place winding concrete staircase with 6-3/4 inch risers and 10-1/2 inch treads (measured at the center) from the second to third floors. This staircase has two intermediate landings and spans 16 feet from floor to floor. There is a bronze railing at 39 inches high on the wall side of the stair and another one at 37 inches high with metal balusters at the opposite side. The bronze alloy contains lead. There is a 3-1/2 inch clearance between the balusters, which are painted with lead-based black paint. The lead-based paint should be removed or encapsulated. This stair does not conform to code. See Photos W and X for this staircase.



Photo W

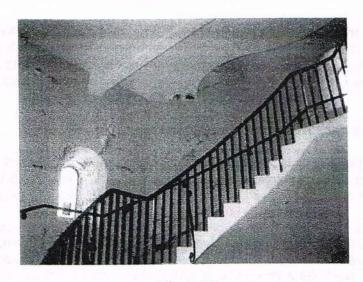


Photo X

At the third floor there is a curved guardrail around the stairs to the second floor (See photo X above for the curved ceiling above the stairs). This guardrail has a bronze railing at 37 inches high with metal balusters painted with black lead-based paint. The bronze alloy contains lead. There is a 3-3/4 inch clearance between balusters. This guardrail doesn't meet code. The lead-based paint should be removed or encapsulated.

There is 6'-0" diameter metal circular stair from the third to fourth floors. This stair also doesn't conform to code and is painted with black lead-based paint, which should be removed or encapsulated. It is approximately 8'-0" from the third floor to the fourth floor. There is a baluster at each tread. See Photo Y below for this stair.



Photo Y

At the fourth floor there is a circular guardrail around the stairs down to the third floor (See photo Y above). This guardrail has a bronze railing at 37 inches high with metal balusters painted with black lead-based paint. The bronze alloy contains lead. There is a 4-1/2 inch clearance between balusters. This guardrail doesn't meet code. The lead-based paint should be removed or encapsulated

#### INTERIOR SIDE OF THE TOWER WALLS:

There is paint over a parge coat covering the walls of the first floor of the Tower. These walls are in good condition and need only minor repairs. (See Photo U above). The walls at the first floor are circular and are just wide enough in diameter to accommodate the circular stair.

There is a coating of what appears to be latex paint applied over a parge coat on the walls at the second and third floors. This coating is peeling extensively, and it, and the parge coat below, should be removed. There are numerous cracks that need to be investigated, and the walls need extensive repair work (See Photos W, X and Y above and Z and AA below). There is no reason to re-apply parging unless the interior side of these walls is exposed concrete. If there is stone under the parging, it should be left exposed to view.

There is nineteen feet between opposite walls at the interior of the second and third floors. There is water penetrating through the walls, especially at the intersection of the stairs from the second to third floors (See Photo AA below).

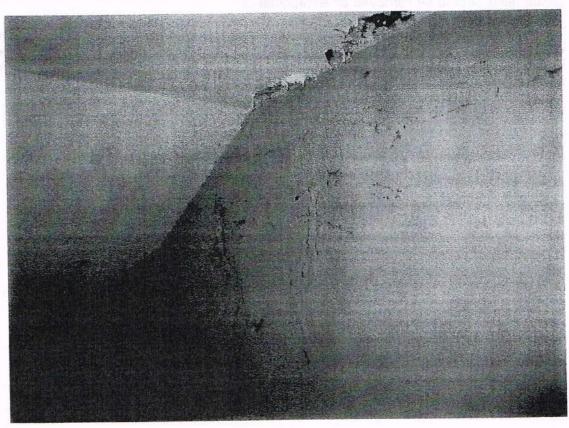


Photo Z

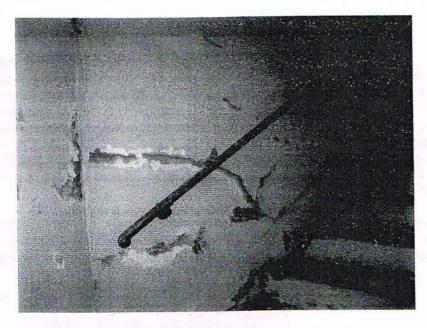


Photo AA

The interior side of the walls on the fourth floor consists of exposed stone, which is the same stone used on the exterior walls of the Tower walls, and is in good condition. The walls are approximately 18 – 20 inches thick at this floor from interior to exterior faces and 9'-6" high at the roof intersection. Each octagonal side measures approximately 7'-8" wide, with 18'-6" between opposite walls. The joints in these walls have been raked and re-pointed in the past with inappropriate mortar. Approximately 60% of the joints should be raked and re-pointed again with mortar to match the original mortar as described above for the exterior side of the Tower walls. There is a fair amount of efflorescence on these walls that should be removed. See Photos U above and BB below for examples of the fourth floor walls.

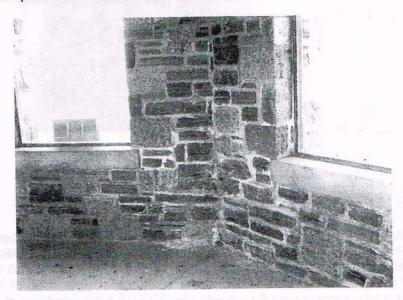


Photo BB

#### DOORS:

There is one door into the interior of the Tower (two exit doors are required by code). The door and frame are in good condition. The door is a piece of painted flat sheet steel about 3/8 inches thick. It is very heavy and difficult to open. The frame is also painted steel, and the interior side of the frame has lead-based paint on it. Both the door and frame are painted black. The door has a lock attached to a metal bar across the exterior side of the opening and is more appropriate for a prison than a Memorial. While there is a concern about vandalism, the door should be replaced with a code compliant door more visually inviting with appropriate exit hardware. The frame can remain in place if it can be altered to accept a new door, but the lead-based paint should be removed or encapsulated.

There is a painted cast concrete plaque above the entry door with the seal of the City of Rockville on it. It is in poor condition and should be repaired or replaced with a bronze plaque to match the other arched plaques at the other walls at this floor (See Photos V above and CC below).



Photo CC

#### WINDOWS:

There are a few small, narrow windows located at the first, second and third floors of the Tower. These windows have original bronze frames and newer plexiglas glazing screwed to the frames. Holes have been cut into the plexiglas to allow the installation of 5 inch by 8 inch thin flimsy metal vents. These windows are either rectangular or arched at the tops and have stone sills. There are two rectangular 8 inch wide by 27 inch high windows at the first floor. There are three arched head 13 inch wide by 32 inch high windows at the second floor and two the same size at the third floors. The jambs and sills slope away from the windows at the first through third

159 Hubbard Street, Middlefield, CT 06455 Phone/Fax: 860-349-8930 www.hubbardassoc.com Page 21

floors. See Photos X and Y above for the second and third floor windows and DD below for the first floor windows.

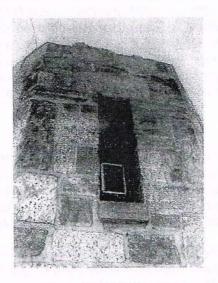


Photo DD

There is a 42 inch wide by 59 inch high arched window in each side of the Observation Room at the top of the Tower. These windows also have original bronze frames and have been modified with plexiglas glazing screwed to the interior side of the frame. Holes have been cut into the plexiglas to allow the installation of 5 inch by 8 inch thin flimsy metal vents. The windows have granite sills, the tops of which are 33 inches above the floor. See Photos U and BB above and EE below.

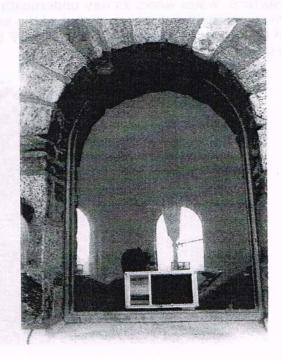


Photo EE

In general, the plexiglas is foggy and scratched with graffiti, the vents are coming loose or are missing, and water running off of the frames is staining the building. All windows should be removed and replaced with new with painted metal frames (which could match the aged patina of the existing bronze if desired). The glazing should be changed to safety glass to provide a safe view out of the windows. New metal vents can be installed instead of windows in the narrow windows in the lower levels for air intake and also at the bottom of the Observation Room windows for air discharge. This ventilation system may be sufficient to remove moisture from inside the Tower as described in the section regarding Mechanical systems below.

#### PROMENADE:

Surrounding the Tower is a semi-circular Promenade with a stone wall constructed of the same stones as the Tower. The wall is in good shape, but has the same problems as the exterior walls of the Tower: efflorescence, stains, loose or missing mortar in joints, moss growing in the mortar joints, poorly installed re-pointing work, etc. This wall should be cleaned and repaired/repointed as recommended for the Tower walls (See Photos FF and HH).

The walking surface of the Promenade consists of random size, random color flagstones set into a concrete setting bed. Approximately 75% of the flagstones are either in poor condition or have lifted out of the setting bed altogether. Numerous attempts have been made in the past to repair this surface, which has left the surface very uneven. The flagstones and setting bed should be completely removed. A new material, possibly a combination poured concrete setting bed/finish walking surface should be installed that will meet current codes.

A new walking surface will provide less joints for water to penetrate and will provide a more level, even walking surface. There is currently no accessibility for the disabled from the Promenade into the Tower. The deterioration of the walking surface is a continual maintenance issue due to the lack of pitch in the surface. Water works its way underneath the flagstones due to freeze/thaw cycles, which in turn cause the flagstones to lift out of the setting bed. This has created a hazardous condition for visitors to the Tower. See Photo FF below for an example of the condition of the Flagstone surface at the Promenade.



Photo FF

159 Hubbard Street, Middlefield, CT 06455 Phone/Fax: 860-349-8930 www.hubbardassoc.com Page 23

There are six through wall drains at the level of the walking surface of the Promenade spaced evenly around the circular portion of the wall. There are no leaders at these drains, so water exits directly onto grade below. The drains are clogged and there are rust stains below these drains, indicating that the drains are rusting out. They are also higher than the level of the walking surface in some locations, so they don't function as designed. A new sleeve should be installed at each drain at the same time that the walking surface is replaced.

There is also a drain at each side of the stairs leading from the Promenade to the Walk. These drains connect into metal pipes that twist around and exit through the first riser of the stairs at the intersection of the granite plinth between the Promenade and Walk walls. The covers are missing from both drains. The drains are rusted and should be replaced. See Photos GG and II below.

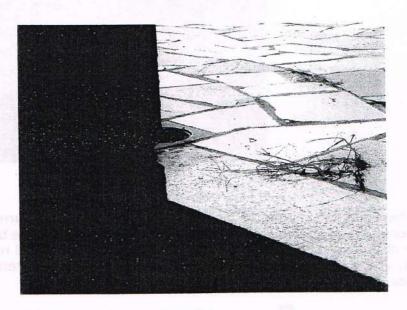


Photo GG

The top of the wall surrounding the Promenade is 37 inches high off the flagstone walking surface at the interior side and about 8'-9" above grade on the exterior side. This wall doesn't conform to code as a guardrail. The wall is approximately 24 inches thick at the top, and angles out slightly down to grade on the exterior side (See Photos FF, HH and II).

Rough cut granite stones were used to cap the walls surrounding the Tower at the Promenade. These stones are in excellent condition and are approximately 29 inches wide by 6'-6" long by 6 inches thick. The joints between the capstones are in poor condition and have had sealant installed in them in the past. The joints should be cleaned, with the existing sealant, which appears to be a polyurethane sealant, removed. New backer rods and polyurethane sealant to match the color of the stone should be installed.

159 Hubbard Street, Middlefield, CT 06455 Phone/Fax: 860-349-8930 www.hubbardassoc.com

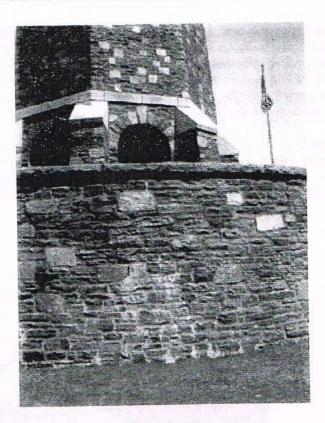


Photo HH

There is a flagpole on the granite plinth where the walls surrounding the Promenade and Walk intersect (See Photos II and NN below and Appendix G). The base of the flagpole has lead in the alloy of the bronze finish. The flagpoles are painted metal and rusting in some locations, especially at the bases (See Photo JJ below). The rust should be removed and the flagpoles should be painted.



Photo II

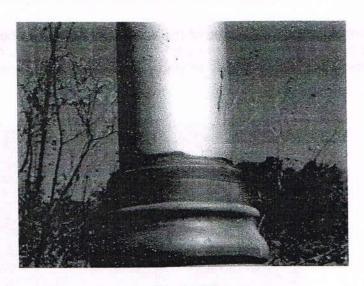


Photo JJ

There are granite stairs leading down from the Walk to the Promenade. They consist of four risers at approximately 6 inches each with 12 inch treads. The width of the stairs is approximately 27 feet. There are no railings at these stairs, which should be installed. These stairs are in relatively good shape, with some cleaning, re-setting of stones, joint re-pointing and cleaning work required. See Photo II above and Photo KK below. Chiseled into the top riser is "Memorial to the Veterans of our Wars".



Photo KK

#### WALK:

There is an approximately 27 foot wide by 190 foot long Walk that leads from the Promenade to the road (See Photo LL below). The surface of the walk is the same flagstone surface as described for the Promenade. The Walk pitches down from the stairs at the Promenade to the stairs by the road, and is the only way for water to drain.

159 Hubbard Street, Middlefield, CT 06455

Phone/Fax: 860-349-8930 www.hubbardassoc.com

The entire flagstone surface of the walk and the setting bed below should be removed. A new walking surface/setting bed to match the surface at the Promenade should be installed with minimal joints to reduce the ability of water to work its way below the surface.

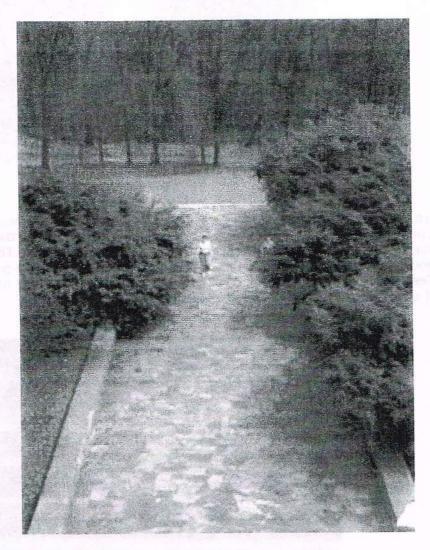


Photo LL

The walls lining the Walk on both sides are the same as the walls surrounding the Promenade in terms of construction and condition and are in need of the same repair work. They are approximately two feet thick by two feet high on both sides of the walls. They do not conform to code as guardrails.

Concrete capstones cast to look like rough granite were used to cap the walls at each side of the Walk. These capstones are in poor condition, with pieces missing and reinforcing bars exposed to the weather, and should be replaced. It appears that the use of cast concrete capstones at these walls instead of granite capstones was a cost-saving measure at the time of construction. Since they haven't held up very well, it might be preferable to replace them with granite capstones

159 Hubbard Street, Middlefield, CT 06455

Phone/Fax: 860-349-8930

www.hubbardassoc.com

instead of new concrete capstones. See Photos MM & NN for examples of the existing condition of the concrete capstones and stone walls at the Walk.

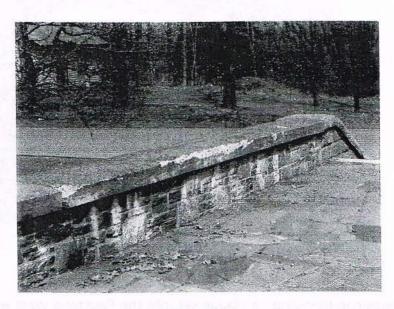


Photo MM



Photo NN

At the end of the Walk are stairs to leading to a small paved area leading to the road. The stone wall at both sides of these stairs changes in construction from "jewel building stones" with concrete capstones to granite stones with granite capstones (See Photos MM above and OO below ). The granite wall on the South side of these stairs is in poor condition due to water penetration. Stones have been dislodged and cracked which need to be replaced and re-set (See Photo OO below).

159 Hubbard Street, Middlefield, CT 06455

Phone/Fax: 860-349-8930 www.hubbardassoc.com



Photo 00

There is a bronze commemorative plaque set into the flagstone Walk where it meets the Stairs. This plaque should be removed and re-set into the new surface of the Walk (See Photos PP and QQ below). The alloy in this plaque contains lead.



Photo PP

The granite stairs leading from the Walk to the Promenade consist of six risers at approximately 6 inches each (at the top five risers) with 12 inch treads. The bottom riser slopes down from 1-1/2 inches high at the north end to 3-1/2 inches high at the south end. The width of the stairs is approximately 27 feet. There are no railings at these stairs, which should be installed. These stairs are in poor condition and need to be completely re-built. Water currently flows down the Walk into the intersection of the Walk and stairs, which is causing rapid deterioration of the base material below the stairs and for the stairs to shift out of alignment (See Photos QQ and RR below).



Photo QQ

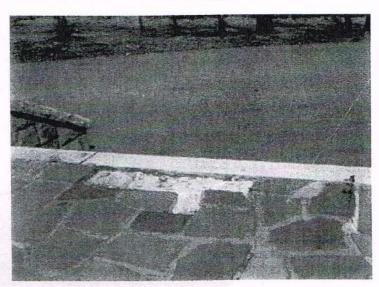


Photo RR

In general, there is currently no accessibility for the disabled from the road to the Walk or from the Walk to the Promenade. A new ramp should be built to provide accessibility to both the Promenade and the Walk from grade (See Appendix C for Proposed Site Improvements).

MEMORIAL TOWER AT FOX HILL VERNON, CT

## EXISTING MECHANICAL/ELECTRICAL CONDITIONS:

#### **MECHANICAL CONDITIONS:**

A mechanical system doesn't currently exist in the Tower. There are no systems involving the use of water (toilets, etc.). There is considerable moisture that penetrates the Tower walls due to rain and moisture migration. Moisture migrates into the interior of the Tower because of differences in temperature and humidity from outside to inside which produce pressures that force moisture into the Tower. The Tower is currently vented by the use of small vents in the existing windows as described above. These vents are not sufficient to allow enough airflow to maintain a dry interior.

Due to the unavailability of construction documents, it is difficult to determine how sealed off to the weather the Tower was originally constructed. However, by taking a close look at the photo c. 1939 in Appendix G, it appears that the door into the Tower is either open or non-existent. The arched openings in the Observation Room appear to have windows and/or grilles contained within them. There is a horizontal band in the middle of these openings that is difficult to identify. There is currently an arched metal grille sitting against the wall in the Observation Room that appears to have been installed in one of the arched openings at some point in the past (See Photo SS below).

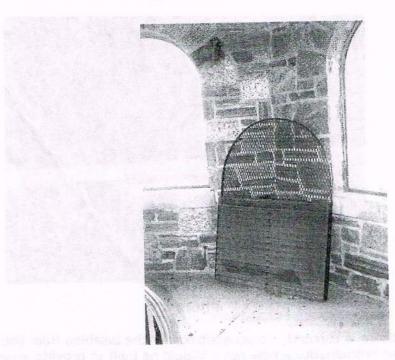


Photo SS

As such, some of the arched openings may have been open to the weather. There are small metal arched drains located at the floor at each wall intersection in the Observation Room (See Photo BB above). These drains lead through the walls to the granite gutters at the exterior as shown in Photo I above. This construction tends to support the theory that the Tower was originally more open to the elements and has been closed up since constructed. By installing windows and doors in the past, the flow of air within the Tower was greatly reduced. Moisture migrating into the building would be trapped, creating many of the problems present at the Tower today.

It is not practical to remove the door and windows in a building that is unoccupied and almost sixty feet tall in order to increase airflow. There are issues of safety and liability that need to be addressed. Once the Tower walls have been repaired (by raking and re-pointing joints, etc.), there are two remedies that can be utilized to relieve any lingering moisture within the Tower:

- The Tower could be vented by installing vents in the windows as described above in the Windows section of this report. This would be the easiest and least invasive method to provide airflow.
- A mechanical ventilation system can be installed in the Tower. This would involve the
  installation of an air intake vent in one of the lower level windows and an exhaust
  fan located somewhere in the Observation Room. This fan would have to exhaust to
  the exterior of the building through a window opening or through the slate roof.

#### **ELECTRICAL SYSTEM:**

There is an electrical box recessed in the wall at the arch opposite the door into the Tower (See Photo TT below). There is 20 Amp service into the Tower, which is fed from the electrical junction box at the foot of the north side of the Promenade wall (See Photo UU below), which is in turn fed via an underground wire from a pole at the road (See Appendix B). There are no lights, exit signs, or other types of electrical fixtures in the Tower, except a large beacon type light on a pole that is inserted into the center post of the circular staircase at the fourth floor.

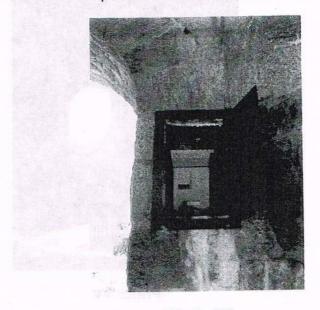


Photo TT

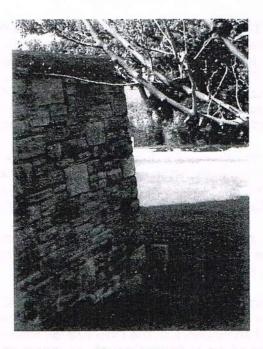


Photo UU

There is a conduit dangling down from the attic hatch to the beacon light. The purpose of this light is to light the Tower up at night. This light should be removed, and new lights located on the site around the Tower should be installed for this purpose (See Photo VV below for the light inside the Observation Room and Appendix C for Proposed Site Improvements). There is also a beacon light at the apex of the Tower roof that is used to light the Tower for air traffic (See Photo N above).



Photo VV

MEMORIAL TOWER AT FOX HILL VERNON, CT

#### **EXISTING SITE CONDITIONS:**

#### GENERAL SITE CONDITIONS:

The Tower is reached by entering Henry Park. Once in the Park, there is a lack of signage to direct visitors to the Tower, and this should be remedied with the installation of new signs. For instance, when stopping at the intersection shown in Photo WW below, there is a small sign indicating the hours that the Tower is open, but not giving any directions as to how to find the Tower.

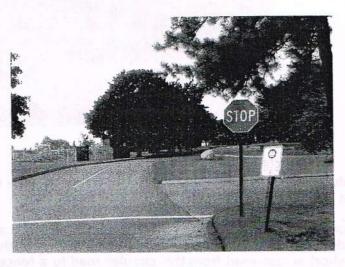


Photo WW

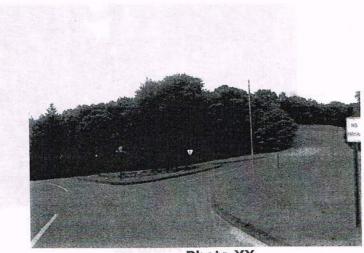


Photo XX

At the intersection shown in Photo XX above, there is a street sign for Tower Road, but no other signage to direct visitors to the Tower. Although the Tower is at the top of the hill behind this intersection, it is blocked from view by trees. At the intersection shown in Photo YY below, there is a sign for the Tower, but no information to tell you which way to go at this intersection to find the Tower.



Photo YY

There should be signs directing visitors to the Tower at each intersection within Henry Park and better signage at the entrances to the Park.

There is a one-way road that circles the Tower, with a small area for parking at the base of the Walk and a widened road for parallel parking in one section of the road on the east side of the Tower. There is a short access road from this circular road to a fenced-in building and cell tower located to the northeast of the Tower which is part of the emergency service system for the Town (See photo ZZ below).

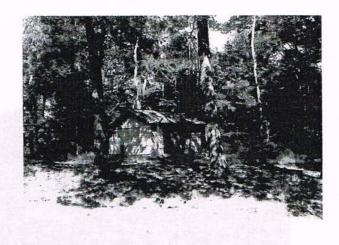


Photo ZZ

There is a large expanse of lawn surrounding the Tower that contains several large oak, maple and hickory trees. There are weeping hemlock, apple and crabapple trees lining the Walk. The hemlocks are original plantings but have become too big and are subject to blight at any time. Only four hemlocks remain: one at the north side of the Walk and three to the south side. As such, there is a patchwork of trees lining the Walk, which should be removed and replaced with new weeping hemlocks or blight-resistant flowering trees (See Photos LL above and AAA below for the trees at the Walk).



Photo AAA

There are picnic tables scattered here and there on the lawn. There is a picnic area with tables and barbeques located southeast of the existing parking area on the opposite side of the road.

There is currently no accessibility for the disabled on the Site. See Appendix B for a topographic map of the existing site. The installation of a new handicapped ramp can provide access to both the Walk and Promenade (See Appendix C – Proposed Site Improvement Plan).

#### WATER/SEWER/STORMWATER SYSTEM:

There is currently no water available at the Tower or Site. Water will be needed to power wash the exterior stone and for other work as part of the Proposed Scope of Work. This is an issue that will need to be resolved before work can commence.

There is no sewer or storm water system at the Site. Runoff from rainfall on the road circling the Tower drains from the road onto grade and down the hill. There are no bathrooms at the site requiring a sewer or septic system. A small building could be erected in the picnic area for bathrooms at some point in the future.

MEMORIAL TOWER AT FOX HILL VERNON, CT

# **EXISTING HAZARDOUS MATERIAL CONDITIONS:**

Lead-based paint is present on the interior side of the entry door frame and the metal circular stair. There is also lead present in the bronze handrails of the stairs, the bronze flagpole bases and the bronze plaque set into the flagstone walk. There is no asbestos present at the Tower in the interior coating on the walls. There is a substance that has been applied to the slates at the hip intersections of the roof. This material was not tested for the presence of hazardous materials. See Appendix A for the "Hazardous Materials Survey Report" prepared by EnviroScience Consultants Inc. for the Tower.

159 Hubbard Street, Middlefield, CT 06455

Phone/Fax: 860-349-8930 www.hubbardassoc.com

Page 37

#### MEMORIAL TOWER AT FOX HILL VERNON, CT

#### CONCLUSION:

The condition of the Memorial Tower is relatively good considering its age and the lack of repair work it has received in the past twenty or so years. However, the continuing problems associated with water penetration and moisture migration will need to be addressed in the near future. The Tower, Promenade and Walk will continue to deteriorate at an accelerating rate due to these conditions. Not only are the walking surfaces a continuing maintenance problem and creating an unsafe situation for visitors to the Tower, they are allowing water to seep into the structure below, creating more extensive damage.

The roof of the Tower is in good condition, but should be replaced in the near future. It is the only element preventing massive damage to the Tower at this time. The walls will continue to deteriorate without timely extensive re-pointing work. The structural system will start to be compromised if restoration work isn't performed in the next few years.

When the Tower was constructed, there were less code requirements for buildings than there presently exist. It would be impossible to bring the Tower totally up to current codes, but an attempt should be made to reduce as many unsafe conditions as possible and create accessibility for the disabled while maintaining the historic nature of the building and site.

We have described the conditions that we have observed at the Tower in the last few months. We have noticed that every time we visit the Tower, the problems there are becoming greater in scope. As such, we recommend that a major restoration of the Tower be performed within the next two or three years.

159 Hubbard Street, Middlefield, CT 06455 Phone/Fax: 860-349-8930 www.hubbardassoc.com

Page 38

#### MICHAEL J. SIRAK, P.E.

CONSULTING ENGINEER
70 OAKWOOD DRIVE, GLASTONBURY, CONNECTICUT 06033
(860) 633-5793 /FAX (860) 659-2367

June 28, 2003

Hubbard & Associates Architects LLC 159 Hubbard Street Middlefield, CT 06455

Attn: Janet M. Hubbard, AIA

Re: Fox Hill Tower

Town of Vernon, Connecticut

#### Gentlemen:

In accordance with the project scope of services, the following report addresses the structural portion of the Existing Conditions Survey for the Fox Hill Tower. Our evaluation is based on visual inspection of the structural elements and does not include testing of materials.

Based on our inspection, the overall tower structure is in good condition with only minor signs of structural problems. Much of the problems are moisture related that could eventually cause deterioration with time unless remedied. The main problem appears to be efflorescence caused from salts in the stone and mortar deposited on the exterior stone surface due to moisture vapor migration from the interior to exterior of the stone walls and concrete structure. Mortar joints and stone however appear to be structurally sound. Some spalling of re-pointed original mortar joints is present that may be due to the use of a harder mortar mix than the original mix. A portion of the base of one stone buttress has badly deteriorated joints which is probable due to wind driven rain on that side of the tower which should be fixed. There is really no signs of cracks in the masonry due to foundation settlement or hurricane force wind loads. Keystones of the stone arches are not loose which means the stone has remained in compression and has not experienced overturning forces that would put the structure in tension.

Inspection of the slate and timber roof structure reveals some environmental weathering of the slate but no indications of movement of the slate. The timber framing of the roof structure does however have an open joint where wind forces have caused tension in the basic compression elements of the arched-dome structure. The weight of the slate roofing is very important to keep the roof framing in compression under high wind loads.

The interior concrete floors, beams, stairs and stair landings appear to be structurally sound with only minor cracking in the concrete floors as a result of expansion and contraction due to temperature change. There are some unsightly cracking of interior plaster parging which again could be due to moisture and temperature change. Additional efflorescence can be seen on the exterior and interior of the first tower floor which is exposed to the exterior at the tower base. This is an indication of moisture vapor migration

4040 Fox Hill Tower Page 2

which occurs in both directions depending on time of year and differences in exterior and interior vapor pressures. Vapor pressure changes with temperature and humidity. The source of moisture is most likely from the ground with concrete slab-on-grade constructed without a vapor barrier and from vapor migration within the stone foundation up into the structure. Ventilation of the tower would let the water vapor out and reduce the amount of vapor migration through the masonry and reduce the amount of efflorescence and mortar deterioration. We do not recommend any exterior protective coatings which would hold moisture vapor in but an interior waterproof coating may be considered to stop moisture from travelling through the masonry. Ventilation, either mechanical or natural through open windows is highly recommended to stop further deterioration of stone and mortar due to vapor migration.

Please do not hesitate to call if there are any questions or if I may be of further assistance.

Respectfully Submitted,

Michael J. Sirak, P.E.

# MEMORIAL TOWER AT FOX HILL VERNON, CT

#### SCOPE OF PROPOSED WORK:

#### **Restoration Work:**

 Clean all masonry surfaces at the Tower, Promenade and Walk with a minimum of one wash with a low impact power water wash. Double wash areas as needed. Remove all existing dirt, moss, efflorescence, lime deposits, etc. Use chemical cleaners only on areas not able to be cleaned with water.

Estimated Cost: \$20,000 (based on water and power being available at the Site)

Remove loose mortar in masonry joints and all existing mortar that has been used to repoint masonry joints in the past at the Tower, Promenade and Walk. Hand rake joints and install new mortar to match original. Assume 75% of existing joints need this work.

Estimated Cost: \$100,000 (based on re-use of staging erected for power washing)

 Remove existing mortar/sealant in horizontal joints at granite capstones at Promenade walls. Install new backer rods and sealant in joints.

Estimated Cost: \$5,000

4. Remove existing cast concrete capstones at Walk stonewall and replace with new granite capstones to match capstones at Promenade wall.

Estimated Cost: \$30,000

 Remove all existing flagstones in Promenade. Remove existing concrete setting bed and slab. Install new concrete slab over compacted gravel base.

Estimated Cost: \$200,000

Remove all existing flagstones in Walk. Remove existing concrete setting bed and slab.
 Install new concrete slab over compacted gravel base.

100%

Estimated Cost: \$200,000

7. Remove existing stone steps at entrance to Walk. Repair existing concrete setting bed and re-install stone steps.

Estimated Cost: \$20,000

159 Hubbard Street, Middlefield, CT 06455 Phone/Fax: 860-349-8930 www.hubbardassoc.com

Page 41

8. Remove and re-set dislodged stones to original position at south end of Wall near entry stairs. Match original mortar.

Estimated Cost: \$5,000

 Clean existing drainpipes at all levels. Replace drains at each side of stairs from Walk to Promenade.

Estimated Cost: \$5,000

10. Remove paint at metal inserts at three locations on inner walls to Tower.

Estimated Cost: \$1,000

11. Patch cracks at granite steps at base of Tower or replace as required (in eight locations).

Estimated Cost: \$8,000

12. Remove existing metal door and frame into the Tower. Install new door, hollow metal frame and exit hardware.

Estimated Cost: \$6,000

13. Remove parging at underside of exterior ceiling at base of Tower. Apply one inch of sprayed-on insulation. Apply new elastomeric cemintitious parging over insulation.

Estimated Cost: \$10,000

14. Remove existing bronze windows. Install new metal clad windows with safety glass. Replace two small windows at first floor with metal louvers for air intake. Install new louvers at bottom 16 inches of four windows at fourth floor for air exhaust.

Estimated Cost: \$45,000

15. Remove existing concrete plaque over door to Tower. Install new bronze plaque with raised relief to match existing plaque design.

Estimated Cost: \$5,000

16. Remove all paint/concrete parging at interior of Tower. Remove all dirt, efflorescence, etc. Rake loose joints and install new mortar to match original. Apply new coat of combination parging and waterproofing finish on all interior walls.

Estimated Cost: \$70,000

17. Repair concrete slab as required at interior of Tower. Remove existing paint at slab.

Estimated Cost: \$10,000

18. Clean and shine existing bronze railings at all stairs. (Bronze contains high amounts of lead).

Estimated Cost: \$3,000

19. Scrape and paint stairs in their entirety (existing black paint at stairs contains lead).

Estimated Cost: \$20,000

20. Install new lead-coated copper gutter liners (at eight locations).

Estimated Cost: \$8,000

21. Remove and replace existing slate roofing and lead coated copper flashing.

Estimated Cost: \$25,000

22. Install new bronze railings at exterior stairs.

Estimated Cost: \$35,000

23. Install new bronze plaques with names of service people under existing bronze arched plaques at three locations at the inner walls of the Tower.

Estimated Cost: \$15,000

#### New Work:

24. Remove existing paving as shown and install new lawn. Install new parking and sidewalks as shown on Proposed Site Improvements.

Estimated Cost: \$25,000

25. Install new walk, stone veneer handicapped ramp and gardens as shown on Proposed Site Improvements.

Estimated Cost: \$160,000

26. Install new lighting towers in three locations as shown on Proposed Site Improvements.

Estimated Cost: \$50,000

159 Hubbard Street, Middlefield, CT 06455 Phone/Fax: 860-349-8930 www.hubbardassoc.com Page 43

27. Install new pole lights for general Site lighting in ten locations as shown on Proposed Site Improvements.

Estimated Cost: \$30,000

28. Install new signage at Park entrances and street intersections.

Estimated Cost: \$20,000

29. Remove existing trees at both sides of Promenade and install new dogwood trees.

Estimated Cost: \$20,000

30. Install new drainage system under surface of Walk.

Estimated Cost: \$50,000

Miscellaneous repairs.

Estimated Cost: \$20,000

Total Estimated Costs - Restoration Work: \$846,000\*

Total Estimated Costs - New Work: \$415,000\*

Total Estimated Costs -Restoration Work and New Work: \$1,261,000\*

\* Please note that the above costs are 2003 costs. Add approximately 5% extra per year until such time that the work is started. Also, provide a larger than normal contingency ( minimum of 15% ) to address issues that are currently unknown. If restoration work hasn't been started by 2006, a new Condition Survey should be performed at that time to re-assess the conditions at the Tower.

Budget for the Restoration and New Work:

Total Estimated Costs: \$1,261,000 15% Contingency: \$189,000 Soft Costs: (Professional Fees, Admin. & Legal, etc.) \$125,000

Approximate Total Costs (2003) \$1,575,000

159 Hubbard Street, Middlefield, CT 06455

Phone/Fax: 860-349-8930

www.hubbardassoc.com

Page 44

Office Locations: Newington, CT Fairfield, CT Boston, MA

June 9, 2003

Ms. Janet Hubbard Hubbard & Associates Architects, LLC 159 Hubbard Street Middlefield, CT 06455

RE: Hazardous Materials Survey Report Fox Hill Memorial Tower Henry Park, Rockville, Connecticut EnviroScience Project No. 03-102.26

Dear Ms. Hubbard:

Enclosed is the report for the hazardous materials survey performed at Fox Hill Memorial Tower at Henry Park in Rockville, Connecticut.

The initial survey was performed on June 3, 2003, by EnviroScience Consultants, Inc.'s (EnviroScience's) licensed inspector Jeffrey LaBonte and included an asbestos bulk sampling and screening for lead-based paint.

#### 1.0 INTRODUCTION

On June 3, 2003 EnviroScience Consultants, Inc.'s (EnviroScience's) Environmental Consultant, Jeffrey LaBonte, a State of Connecticut Licensed Asbestos and Lead Paint Inspector, performed a hazardous materials survey of selected areas of the Fox Hill Memorial Tower.

This inspection was performed in response to the planned renovation of the selected areas of the tower, and consisted of a survey for asbestos containing materials (ACM), a screening of painted surfaces for lead. The roof was inaccessible and was not tested for asbestos.

The interior and exterior of the target areas were inspected in accordance with EnviroScience's written proposal dated May 8, 2003.

Appendix A

#### 2.0 ASBESTOS INSPECTION

Suspect ACM were sampled in textured paint or walls of interior of building. Materials that were sampled were analyzed by Polarized Light Microscopy (PLM). Results are attached as Appendix A.

Utilizing the USEPA protocol and criteria, the following materials were determined to be non-ACM:

TABLE 2

| LOCATION       | MATERIAL TYPE          | SAMPLE ID |
|----------------|------------------------|-----------|
| Interior Walls | Textured Ceiling Paint | 01-03     |

#### 2.1 Discussion

The USEPA defines any material that contains greater than one percent (>1%) asbestos, utilizing PLM, as being an ACM. Materials that are identified as "none detected" are specified as not containing asbestos.

#### 3.0 LEAD-BASED PAINT SCREENING

A lead paint screen was performed at the tower of interior and exterior paint surfaces. A direct reading X-ray fluorescence (XRF) analyzer was used to perform the screening. The screen was conducted in accordance with the protocol outlined in the attached document: Testing Procedures and Equipment (Appendix B).

For the purpose of this screen, various interior and exterior components representing the initial painting history of the building and any building-wide repainting by the owners/managers of these building components were tested. Of course, individual repainting efforts are not discoverable in such a limited testing program. The purpose of this screen was to identify trends in the painting history of the building in order to determine if Toxicity Characteristic Leachate Procedure (TCLP) analysis was required.

The building was constructed with a brick and metal siding exterior with metal window and door systems. The interior is sheetrock with concrete floors.

#### 3.1 Results

The screen indicated consistent painting trends throughout the building interior and exteriors. No painted components were determined to contain toxic levels of lead (greater than 1.0 milligrams of lead per square centimeter of paint) with the exception of the following:

| Item               | Location    | Reading (mg/cm5) |
|--------------------|-------------|------------------|
|                    | First Level |                  |
| Door frame - metal | Entrance    | 7.7              |

| Item                     | Location     | Reading (mg/cm5) |  |  |
|--------------------------|--------------|------------------|--|--|
| Stair post - metal       | Stairway     | 1.1              |  |  |
| Stair support - metal    | Stairway     | 2.1              |  |  |
| Rail support - metal     | 1.2          |                  |  |  |
| Understair tread - metal | Stairway     | 2.0              |  |  |
|                          | Second Level |                  |  |  |
| Stair rail - metal       | Stairway     | 1.7              |  |  |
| Stairs - metal           | Stairway     | 1.4              |  |  |
| Stair rail - metal       | Stairway     | 7.7 to 8.6       |  |  |
| Flag post base - metal   |              | >9.9             |  |  |
| Plaque - metal           |              | >9.9             |  |  |

Due to the infrequency and absence of lead paint in most places, a TCLP was not conducted.

**Disclaimer:** The information contained in this report concerning the presence or absence of lead paint does not constitute a comprehensive lead inspection under Connecticut regulations, Section 19a-111-1 to 11. The surfaces tested represent only a portion of those surfaces that would be tested to determine whether the premises are in compliance with Connecticut regulations.

The Contractor shall be aware that OSHA has not established a level of lead in a material below which 29 CFR 1926.62 does not apply. The Contractor shall comply with exposure assessment criteria, interim worker protection and other requirements of the regulation as necessary to protect workers and building occupants.

If you have any questions regarding the contents of this report, please do not hesitate to contact me at (860) 953-2700, extension 3008. Thank you for this opportunity to have served your environmental needs.

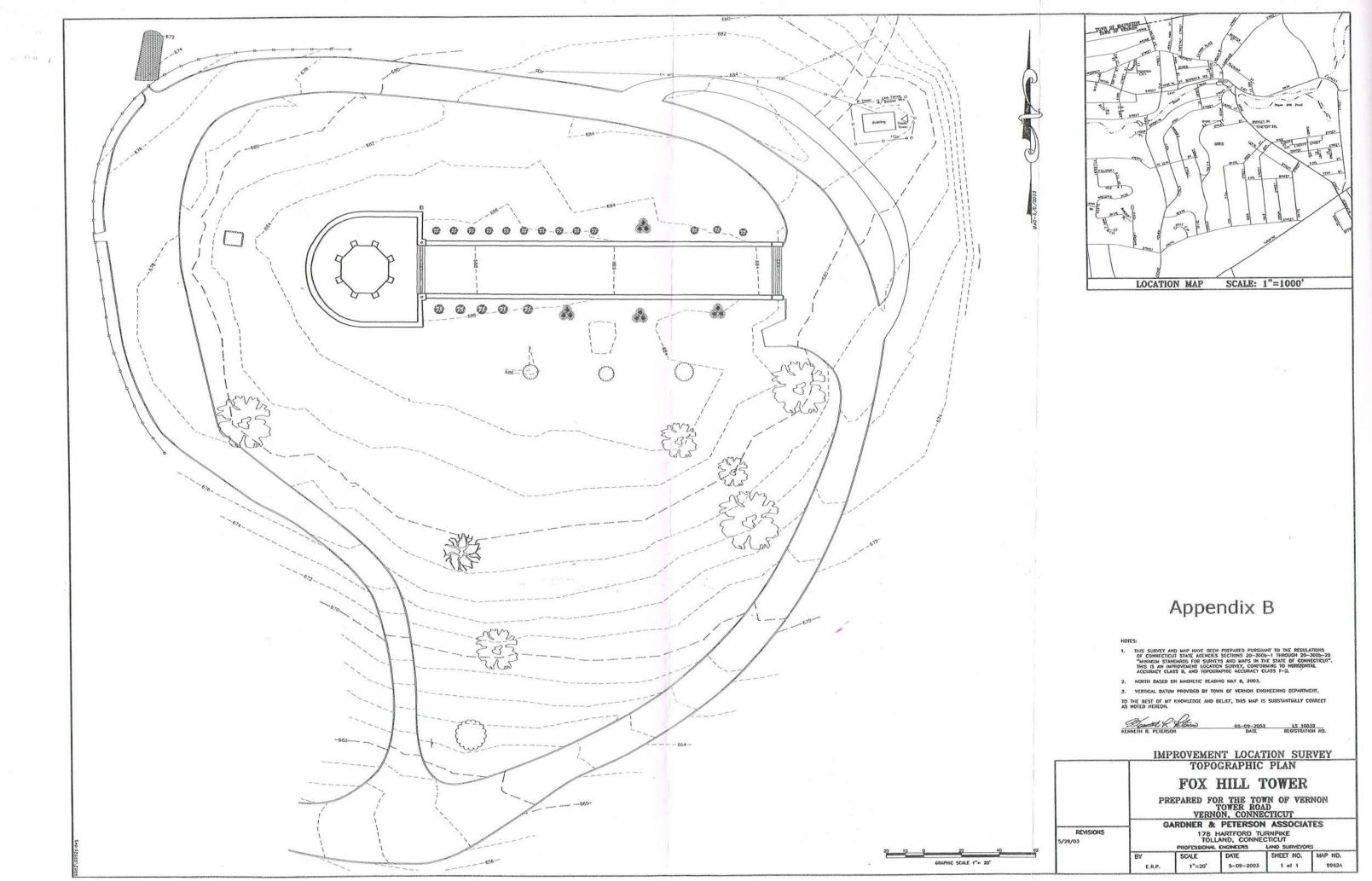
Sincerely,

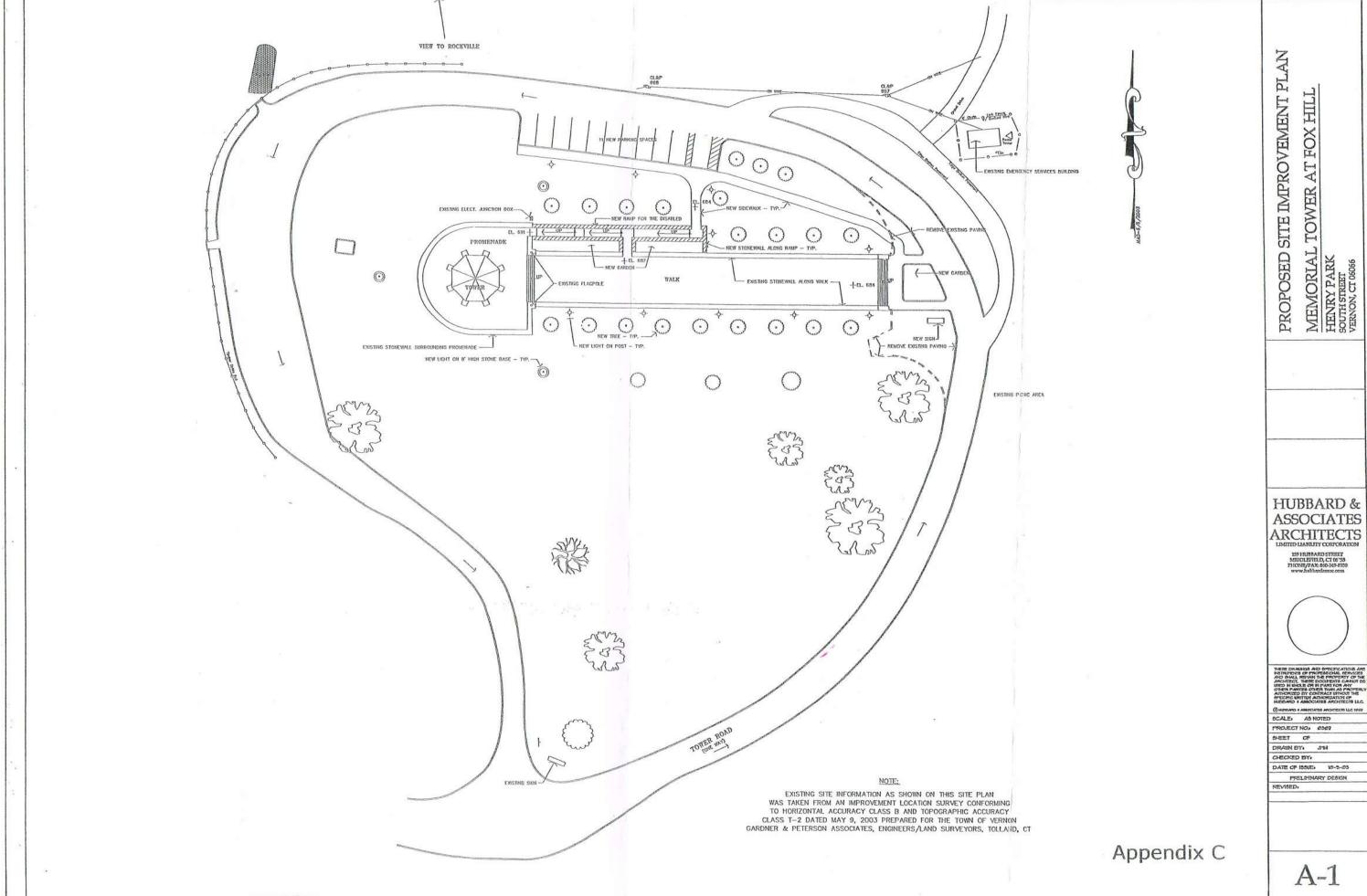
Stephen W. Connelly O Senior Vice President

SWC/lw/des

Enclosure

\\ENVIRO\EVERYONE\WORD\PROJECTS\03\03-102.26.DOC





#### APPENDIX A

ASBESTOS SAMPLE RESULTS AND CHAIN OF CUSTODY (INITIAL SURVEY)

#### EMSL Analytical, Inc.

107 Haddon Ave., Westmont, NJ 08108

Phone: (856) 858-4800 Fax: (856) 858-4960 Email: ssiegel@EMSL.com



Attn:

Fax:

Project:

Steve Connelly

EnviroScience Consultants, Inc.

795 North Mountain Road

Newington, CT 06111

(860) 953-3203

Phone: (860) 953-2700

03-102-26 ROX HILLTOWER

Customer ID:

ENVI54

Customer PO:

Received:

05/31/03 10:58 AM

EMSL Order:

040308784 EMSL Project ID:

Analysis Date:

6/2/2003

#### Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized **Light Microscopy**

|                |                            |                              | g           | . ,   |              |                         |               |
|----------------|----------------------------|------------------------------|-------------|-------|--------------|-------------------------|---------------|
|                |                            |                              |             |       | Non-As       |                         | Asbestos      |
| Sample         | Location                   | Appearance                   | Treatment   | % Fil | brous        | % Non-Fibrous           | % Type        |
| 01             | INTERIOR                   | White/Tan                    | Dissolved   | 5%    | Min. Wool    | 95% Non-fibrous (other) | None Detected |
| 040308784-0001 |                            | Non-Fibrous<br>Heterogeneous |             | <1%   | Wollastonite |                         |               |
| 02             | INTERIOR                   | Tan                          | Dissolved   | 3%    | Min. Wool    | 97% Non-fibrous (other) | None Detected |
| 040308784-0002 |                            | Non-Fibrous<br>Heterogeneous |             |       | ÷            |                         |               |
| 03             | INTERIOR                   | Tan                          | Dissolved   | 3%    | Min. Wool    | 97% Non-fibrous (other) | None Detected |
| 040308784-0003 | 777.0000.700.0000.0000.000 | Non-Fibrous<br>Heterogeneous | 4 4 4 4 4 4 |       |              |                         |               |

Analyst(s)

Delores Beard (3)

Stephen Siegel, CIH or other approved signatory

PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Negative PLM results cannot be guaranteed. Samples reported as <1% or none detected should be tested with TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical. Inc. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Analysis performed by EMSL Westmont (NVLAP #101048-0), NY ELAP 10872



THIS IS THE LAST PAGE OF THE REPORT.

APPENDIX B

LEAD PAINT TESTING PROCEDURES AND EQUIPMENT



# EnviroScience Consultants inc.

Environmental Engineering & Industrial Hygiene & Laboratory Services

Office Locations: Newington, CT Greenwich, CT Boston, MA

| Building:  | tower   | Project Number: 0                    | · Curelly                              |
|--|---|--------------------------------------|--|
| Sample ID Number                                 | Sample Location   | Material Type                        | Result (%)                             |
| 01   | Interior  | Paint                                |  |
| 07   | Interior  | Paint                                |  |
| 03   | Interior  | Pant                                 |  |
|  |   |                                      |  |
|  |   |                                      |  |
|  |   |                                      |  |
|  | - Award in  |                                      |  |
|  |   |                                      |  |
|  | OBUNDANOS OVERES, TO  | r tue-ar                             |  |
|  | *   |                                      |  |
| 7. 8   | *   |                                      |  |
|  |   |                                      |  |
| Analysis Method: Pl                              | _M ☐ Other<br>me*Indicated above, analyses are due to En<br>at 860-953-2700 if analyses will be late. | Turnarour                            | ************************************** |
| Fax Results To: Enviro                           | Science Consultants Inc. Laboratory at 413-   | 647-0018                             | <b>3</b> ,                             |
| Special Instructions:                            | Stop analysis on first positive sa<br>o not layer samples unless indica                               | ample in each homogeneous se         | t of samples unless                    |
| asbestos content <                               | 4%. positive stop on all point of   | counts.                              | ************************************** |
|  | C C I A A L I D D   | D C 1/2                              | <u> </u>                               |
| Samples Collected By:<br>Samples [Rec'd][Sent By | Date:   | 5-8-03 Time: _<br>[5-8-681 1 Time: L | It                                     |
|  | Date:   |                                      |  |
| Samples neceived by.                             | 1 \_  |                                      |  |
| Samples Received By: Shipped To: EMS             | SL (State)  | Other                                |  |

# STANDARD OPERATING PROCEDURES HUD AND STATE OF CONNECTICUT LEAD-BASED PAINT INSPECTIONS

#### TESTING PROCEDURES AND EQUIPMENT

The U. S. Department of Housing and Urban Development (HUD) "Guidelines for the Evaluation and Control of Lead Hazards in Housing, September 1997," were consulted for this lead evaluation. HUD has been the agency at the federal level with responsibility for the establishment of national lead-based paint standards for testing and abatement. The HUD document will be referenced as the Guidelines in this report. The State of Connecticut Department of Public Health's current lead regulations, Lead Poisoning Prevention and Control (19a-111-1 through 19a-111-11) were also consulted.

This lead evaluation was either comprehensive or a spot test, also known as a lead screen. Both the proposed scope of work and the final report will note which type of evaluation was done. A comprehensive inspection means that representative painted surfaces were systematically evaluated on a room by room basis in accordance with the Guidelines and the State of Connecticut regulations.

A spot test, or lead screen, means that only a few surfaces were tested and that conclusions about untested areas cannot be reliably determined based on the limited testing that was done. A disclaimer will be employed in the report to note that the lead evaluation done is not in complete accordance with the testing protocol in the Guidelines and in the Connecticut regulations.

Lead-based paint surfaces and components were identified by utilizing on-site x-ray fluorescence (XRF) instruments. EnviroScience Consultants, Inc. owns and maintains two different types of XRFs for testing for lead-based paint. These instruments are four (4) Radiation Monitoring Device LPA-1s (RMD) and a Scitec MAP 4 analyzer. Each of these instruments is operated in accordance with state and federal and manufacturer standards on the use of the instruments. State and federal protocols provide, with the exception of wall surfaces, one reading with the instrument on a representative component in each room, i.e., baseboard, chair rail, etc., as sufficient to establish the lead paint classification of all the representatives of that component type in a room. In the case of walls, because of the large spacial areas involved and the variability in lead content in paint over such large areas, the federal and state governments want a reading on each wall surface in a room. Therefore, representative testing is not permitted for walls.

The federal government has developed Performance Characteristic Sheets (PCS) for each of the types of instruments cited above. Each instrument must be calibrated in accordance with these PCSs on a 1.0 milligram lead standard. Each of EnviroScience's instruments has one of these standards assigned to it. Some of the standards were purchased directly from the government and the others from the manufacturers of the instruments.

For the Scitec MAP 4 instrument, on one or more substrates, substrate interference can affect the validity of the result. For this instrument, if the reading is below 4.0 mg/cm², a Substrate Equivalent Lead (SEL) was determined on certain substrates in the Screen and Test Modes of the instrument. For the RMD in the standard reading mode on metal, an SEL also has to be determined. To determine the SEL, the paint is removed from the surface of the component to obtain a bare substrate reading. After removing the paint, the surface is wiped with a 5% trisodium phosphate solution (a heavy duty cleaner). All paint residue is collected and properly disposed of. Once the paint and surrounding area are cleaned, the XRF is utilized to determine the SEL for each surface. The SEL values are subtracted from the XRF values to determine the Corrected Lead Concentration (CLC). The CLC is the lead content of the paint on the component tested.

Each of the types of instruments has federal government-determined positive and negative ranges for the definition of lead-based paint. In addition, the Scitec MAP 4 also has inconclusive ranges in many of its reading modes. XRF results are classified using either the threshold or the inconclusive range. For the threshold, results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold. There is no inconclusive classification when using the threshold. For the inconclusive range, results are classified as positive if they are greater than the upper limit of the inconclusive range, and negative if they are less than the lower limit of the inconclusive range. The ranges for each of the types of instruments and their various operating modes are as follows:

Radiation Monitoring Device LPA Analyzer 1

| 30-Second Standard Mode Reading Description             | Substrate | Threshold (mg/cm²) |
|---|-----------|--------------------|
| Results corrected for substrate bias on metal substrate | Brick     | 1.0                |
| only.   | Concrete  | 1.0                |
| And make on Francol these instance one concerns         | Drywall   | 1.0                |
| 1   | Metal     | 0.9                |
| namination are thank or the use of the second residence | Plaster   | 1.0                |
| downer, com was grantered through statement with a      | Wood      | 1.0                |

| Quick Mode<br>Reading Description  | Substrate | Threshold<br>(mg/cm²) | Inconclusive<br>Range<br>(mg/cm²) |
|--|-----------|-----------------------|-----------------------------------|
| Readings not corrected for substrate bias  | Brick     | 1.0                   | None                              |
| on any substrate.  | Concrete  | 1.0                   | None                              |
| e Contrata de de la contrata del contrata del contrata de la contrata del contrata de la contrata del contrata de la contrata del contrata del contrata del contrata del contrata de la contrata del co | Drywall   | 1.0                   | None                              |
| the and record as from of their addition   | Metal     | 1.0                   | None                              |
|  | Plaster   | 1.0                   | None                              |
| dig the real contribution of the second contribution in  | Wood      | 1.0                   | None                              |

Scitec MAP 4 Spectrum Analyzer

| Unlimited Mode Reading Description                     | Substrate | Inconclusive Range (mg/cm²) |
|--|-----------|-----------------------------|
| Results not corrected for substrate bias for unlimited | Brick     | 0.91 to 1.19                |
| mode readings.   | Concrete  | 0.91 to 1.19                |
|  | Drywall   | 0.91 to 1.19                |
|  | Metal     | 0.91 to 1.19                |
|  | Plaster   | 0.91 to 1.19                |
|  | Wood      | 0.91 to 1.19                |

| Screen Mode Reading Description                         | Substrate | Inconclusive Range<br>(mg/cm²) |
|---|-----------|--------------------------------|
| Results corrected for substrate bias on drywall, metal, | Brick     | 0.91 to 1.09                   |
| and wood substrates.                                    | Concrete  | 0.91 to 1.09                   |
|   | Drywall   | 0.91 to 1.39                   |
|   | Metal     | 0.91 to 1.19                   |
|   | Plaster   | 0.91 to 1.09                   |
|   | Wood      | 0.91 to 1.29                   |

| Test Mode Reading Description   | Substrate | Threshold (mg/cm²) | Inconclusive<br>Range<br>(mg/cm²) |
|---|-----------|--------------------|-----------------------------------|
| Readings corrected for substrate bias for test mode readings on drywall, metal, and wood substrates only. | Brick     | 0.9                | None                              |
|   | Concrete  | 0.9                | None                              |
|   | Drywall   | None               | 0.91 to 1.39                      |
|   | Metal     | None               | 0.91 to 1.09                      |
|   | Plaster   | 0.9                | None                              |
|   | Wood      | None               | 0.91 to 1.29                      |

If a reading falls in the inconclusive range, either the lead inspector should be authorized by the client to take a paint chip sample to determine whether the final result is either positive or negative after laboratory analysis, or the result can be categorized as suspect positive and treated accordingly. If it is not confirmed with laboratory analysis, it cannot be assumed to be negative for toxic levels of lead. If it is assumed to be positive, it can either be abated as a positive if the condition of the surface and/or location of the component requires this treatment under Connecticut and/or HUD regulations, or it can be managed in place as a positive component in accordance with the requirements of Connecticut and HUD regulations.

Prior to the start of any testing, a sketch of the building is drawn, and side designations are given to help identify exactly where readings were taken. Drawings depicting the room numbering scheme are located on the cover page(s) for the building(s) inspected. Each side of the building was labeled A, B, C, or D. The wall "A" side of the unit is generally the side of primary entrance into a dwelling, and this room is always Room 1. Areas in the units include rooms, hallways and closets. Areas are numbered in a clockwise fashion as building construction allows. This allows the inspector to indicate which substrate surface was tested. The condition of the surface is

described by a check mark in the appropriate column, under the heading "condition of surface" on the testing form.

When more than one surface type was present on a side, the component tested was indicated with a number. If two windows were present on a building side, they were numbered left to right. Closet shelves and shelf supports were numbered top to bottom.

It is understood that the room layouts presented in the report are in conformance with the conditions that exist at the time the testing is performed. EnviroScience avoids labeling a room solely by its current functional use (i.e., living room, bedroom, etc.) since this use can change over time. Similarly, room layouts can change dramatically as dwellings are renovated and additions are built, incorporating existing rooms, or existing interior walls are moved or eliminated altogether.

F:\EVERYONE\WORD\PROJECTS\TEMPLATES\SOPTPAE-CT.TMP.DOC February 8, 2001

APPENDIX C

LEAD TESTING FIELD DATA SHEETS



### LEAD INSPECTION COVER SHEET

|  |  | Inspecto       | r's Information  |  |                                  |
|--|--|----------------|--|--|----------------------------------|
| Inspector's Nar<br>XRF Model:<br>Date of Inspect | ion: 6310  | aBonte<br>03   | Seria  | Number: 12  I Number: 03   | 95                               |
| Building Addre  Describe Struc                   | ss: Fox H  | ill Memorial T | Age of Prope   | ,  | 5                                |
| Are there lead<br>Were lead dus                  | hazards preser<br>t wipes taken?                                 | nt? Yes No     | ML   | iltiple Family Build   | ling                             |
| Si · Is there an E                               | ngle Family Du<br>ngle Family Du<br>EBL child preser<br>welling? |                | Number of ur  Is there an E in building?  If EBL child,  Is there a chi age in the bu  | nits in building: nits tested: BL child present which unit(s)? Id under six years oilding? six, which unit(s)? | ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No |
|  | aint Film Used:<br>neck Limits Use                               | d: RMD (0.7    | libration Check  mg/cm <sup>2</sup> M  to 1.3 mg/cm <sup>2</sup> incluite 2.3 mg/cm <sup>2</sup> incluite 2.3 mg/cm <sup>2</sup> | anufacturer's Stand<br>sive)<br>sive)  | dard 1.0 mg/cm <sup>2</sup>      |
|  | Hour   | First Reading  | Second Reading   | Third Reading  | Average                          |
| First Check                                      | 1530   | 0.6            | 0.6  | 0.4  | 0.6                              |
| Second Check                                     | 1615   | 0.8            | T.0  | 0.8  | 0.77                             |
| Third Check                                      |  |                |  |  |                                  |
| Fourth Check                                     |  |                |  |  |                                  |

| Floc    | or:  | Ro                 | Room:          |               |          |               |          | Pa        | ageof    |  |
|---------|--|--------------------|----------------|---------------|----------|---------------|----------|-----------|----------|--|
| Side    | Surface  | X.R.F.<br>Readings | Subs           | Substrate CLC |          | Result        |          | Paint Chi |          |  |
| 14      | int doorframe  |                    |                | Type          | SEL      |               | POS      | NEG       | Sample # |  |
|         | els acormane   | 1.1                |                | Steel         |          | -             |          |           |          |  |
|         | stair port<br>Stairsupport<br>raid support<br>understair treax | 7.1                |                | Sheel         |          |               |          |           |          |  |
|         | Sidi Superior  | 17                 |                | Stee!         |          | -             | -        |           |          |  |
|         | wad sopport  | 2 0                |                | Stee          |          |               | 1        |           | ļ        |  |
|         | D. LL.   | 1 2.0              |                | Slee          | -        |               | -        |           |          |  |
|         | 2 m level  | 1.7                |                | 1 6           |          |               | -        |           |          |  |
|         | Stairmed   | 1. /               |                | Steel         |          |               | اسما     |           |          |  |
|         | starrailing  | 17-01              |                | Steel<br>CM # |          |               | Samuel I |           |          |  |
| - X     | C Star Pailing   | 700                |                | CM P          |          |               | · Iom    |           |          |  |
|         | the pole base  | 79.9               |                | CM            |          |               | 10000    | -         |          |  |
|         | The pole base  | /4.7               |                | CM            |          |               | -        |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           | **       |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          | -             |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               | - X      | -             |          |           | 1        |  |
|         |  |                    |                |               | -        |               |          |           |          |  |
| 7       |  |                    |                | -             |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          | -             |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  | - 1                |                |               |          |               | 1        |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          | -         |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          | $\rightarrow$ |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         | _  |                    | 1 27           |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    |                |               |          |               |          |           |          |  |
|         |  |                    | 111111111      |               |          |               |          |           |          |  |
| ubstrat | e Type: Metal = M W  | nod = W Place      | ter = P Sheet- | nck - 5 C     | `onerst- | - C B         | - L      |           |          |  |
| otes:   | TW - COUNTOBE  | to motal           | )              | - 3 C         | oncrete: | - C Brid      | x = B    |           |          |  |
| -       | Appendix of the second   | TALL BURN          | TI.            |               |          |               |          |           |          |  |

Vielin.

Memorial Tower.

Rockville, Conn.

A Memorial to the Soldiers and Sailors from Rockville who have taken part in their Country's Wars since the Pown's Catherna.

Henrial Dimensions are approximately 24 ft. dimeter, "" ft. high to the tip of the roof.

The ground floor of the tower is three steps above the stone platform and is an open grasde, in the center of which is a circular stone staircase 6 ft. in diameter, enclosed in an eight-sized stone burget and leading up 15 ft. to the 1st floor or platform 1 the tower.

From that level the staircase continues on up 24 ft. to the Observation Flatform at the top of the Tower, which has eight stone-arched window openings fitted with metal casement such.

The framing timbers of the roof ere exposed and of oak, as in the Lucina Memorial Chapel at Bockville.

This Observation hoos will be a Nemorial to obert Maxwell from his family.

the areas of the ground from will have suitable military and seval emblems, deter entranted to the men in whose manual trackets. Tower is exected.

#### Notes on the

#### WAR MEMORIAL TOWER,

Rockville, Conn.

by the Architect

Walter B. Chambers, F.A.I.A.

The design of the Memorial Tower was suggested in part by an old Romanesque church in France near Poitiers.

Founded nearly a thousand years before Columbus discovered America, it was old when the English led by Edward the Black Prince, won their famous battle with the French in 1356 on the plains nearby.

When I sketched it some years ago the old church was as vigorous as ever.

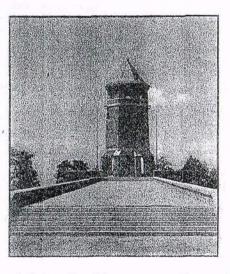
I believe that will be true of our Tower for many hundreds of years to come, because of the conscientious care given to its construction. The foundations rest on solid rock, the backbone of Fox Hill. The masonry walls have been built by skilled craftsmen under experienced supervision.

An earthquake may shake it; but that earthquake will first have to shake Fox Hill.

The rest—the promenade, roadways, grading and planting has been designed to conform to the site, and to the Memorial's purpose.

94,25

# PROGRAM OF Ceremony of Dedication of the



Memorial to the Veterans of our Wars

Held At

THE MEMORIAL TOWER

Fox Hill, Rockville, Conn.

Saturday, August 5, 1939

At Two P.M.

#### PROGRAM OF EXERCISES

Selection ......by Stanley Dobosz Post No. 14

American Legion Band

America

My country! 'tis of thee, Sweet land of liberty, Of thee I sing; Land where my fathers died, Land of the Pilgrim's pride, From every mountain side Let freedom ring.

Dedication of Flags

Stanley Dobosz Post No. 14 American Legion

Chorus ......by the Gesang and Declamation Society "Schwinge dich auf mein lied" ......Ernst Hansen Op. 239

Presentation of Keys of the Tower
Chairman of Committee Dr. George S. Brookes

Acceptance for the Town of Vernon
First Selectman George C. Scheets

Acceptance for the City of Rockville

Mayor Claude A. Mills

Selection .......by the Band "Over There" Medley of Word War Songs

Address ......His Excellency The Governor Raymond E. Baldwin

Bernard J. Ackerman, Department Commander of American Legion, will introduce the speakers.

Chorus ......by the Gesang and Declamation Society "Dear Land of Home" ......Jean Sibelius

 The Star Spangled Banner

O say, can you see, by the dawn's early light, What so proudly we hailed at the twilight's last gleaming? Whose broad stripes and bright stars, thro' the perilous fight.

O'er the ramparts we watched were so gallantly streaming? And the rockets red glare, the bombs bursting in air, Gave proof thro' the night that our flag was still there. O, say, does that star spangled banner yet wave O'er the land of the free and the home of the brave?

Benediction Rev. J. Arthur Edwards
Taps H. R. Obenauf

3 p.m. Chimes from the Tower of Union Congregational Church. Carilloneur, Mrs. Wilfred Lutz

Selections

America—Columbia the Gem of the Ocean—My Old Kentucky Home—Keep the Home Fires Burning—America, the Beautiful—Home Sweet Home—The Perfect Day—America

8-10 p.m. Concert by the Band

| The state of the s |
|--|
| Stars and Stripes Forever-MarchSousa   |
| Wang-Selection   |
| American Patrol—Patriotic SelectionLampe   |
| From Dawn Till Twilight-Selection  |
| Anchors Aweigh (Song of the Navy)Zimmerman   |
| Glory to The Marines (Song of the Marines)   |
| Over There—Medley of World War Songs   |
| Old Timers—WaltzLake   |
|  |
| Yankee Rythm   |
| Spirit of '98-March to Spanish American War Vets   |
| To the Legion—March Letford  |
| National Anthem  |

We regret that Frederick G. Hartenstein, chairman of the War Memorial Committee from the beginning of its activities, did not live to participate in the Dedication of this Tower. He labored long for its achievement, and we shall remember with gratitude his services.

The War Memorial Committee wishes to thank the Rockville Civic Association for making possible this printed program; also the following patriotic organizations for the gift of the two American flags for the Tower—American Legion Unit No. 14; Sons of Union Veterans of the Civil War Auxiliary No. 5; Veterans of Foreign Wars, Frank Badstuebner Auxiliary; Burpee Woman's Relief Corps; Ellen G. Berry Auxiliary; and Maria Newell Tent.



# Mining's Her Business

Woman quarry owner carries on husband's work launched by an accidental discovery in Tolland

Text and Photos

by KIRK G HATSIAN

Courant Staff Reporter

SMALL stone changed Mrs. Bruce Cramer's life. It was back in 1931. She

and her late husband, a geolo gist, left their home in New-buryport, Mass., for a Sunday afternoon drive to Connecticut.

As they were on Rt. 30 in Tolland, Cramer was attracted by a stone at the edge of the road, glimmering in the bright

He stopped the car to investigate; and immediately realized it was a rare stone. He wanted to find where it came

mucn inquiry, learned the stone was from a wooded land off what is now Mt. Spring Road.

The stone contained about 25 per cent of its bulk in garnet of gem stone clearness, disclosing a rare shade of dark lav-

ender, purple, and red purple. The remainder was formed of crystal quartz and snow-white mice, producing a magnificent color combination.

CRAMER told his wife, Mary, that he had made an un-usual discovery and the couple immediately set about buying the land.

the land.

When negotiations were completed, Mr. and Mrs. Cramer pulled up stakes in Newbury port and moved to Tolland.

The discovery of the stone

launched them into a mining and quarry career.

Mrs. Cramer gave up her po-sition as an art supervisor in Massachusetts public schools to come here.

Cramer died in 1960, leaving his wife six quarries and one garnet mine. Since his death, she has been running the bus-

"The neighbors called my husband the 'mystery man' when we first arrived here," recalled Mrs. Cramer. "They didn't have any idea what we were doing.

"When they found out, they were sorry they didn't discover this little 'gold mine' in the hills."

Mrs. Cramer's place is called "Burgundy Hills Quarries." She picked the name bergundy because it's the color of gar-

STONES from the quarries are called jewel building stones and are used for memorials, tombstones, plaques and decorative pieces.

The garnet from the mine is used in the manufacture of abrasives, such as grinding wheels, and for other purposes such as jewel movements in watches.

A garnet is a semi-precious stone. Its different varieties exhibit almost all colors except blue. Brown, red, green, yellow and black stones are common. Darker ones are usually opaque, and light ones may be transparent or translucent.

The first order they received, said Mrs. Cramer, was for 1, 800 tons of quarry jewel building stones for construction of the Fox Hill Tower in Rockville's Henry Park. Dedicated in 1939, the 71-foot high tower, which oset \$70,000 was built as which cost \$70,000, was built as a memorial to Rockville veterans of all wars.

"Look," said Mrs. Cramer, pointing toward the horizon. "You can see the tower from here, standing there in majes-tic splendor."

PEOPLE from all over New England and beyond have heard about the business here,

Mrs. Cramer's most famous customer is former President Eisenhower. In 1954 Eisenhowthen in office, ordered several tons of stone from the quar-ries for his farmhouse in Gettysburg, Pa., about 80 miles from Washington, D.C.

The stones were carefully crated and sent to the Chief Executive's 179-acre farmstead.

Some, five feet long, were used for hearth stones, and pol-ished for doorway lintels. A pol-ished table top alab was used



From a small and crowded office in Tolland (left) Mrs. Bruce Cramer carries on her late husband's mining operation and guards the "treasure" in the Tolland hills, Garnet-studded stone from one of the Cramer quarries (above) shows rich concentration of the semi-precious gem.

for garden furniture and other pieces for decorative purposes.

The quarries are over 200 feet thick and several thousand feet in length. Layers of rock run from one-half inch to 24 inches in thickness

These layers can be lifted in great sheets by means of steel wedges, as though they were pages of a giant book.

The layers of stone are uniform in higher

form in thickness and their surfaces, top and bottom, have a pearly, silvery white sheen.

They are studded thickly with heautiful garnets ranging in size from one quarter to one half inch in diameter. The stone has been polished by glacial action.

The six quarries and garnet mine are located on 200 acres of the 300-acre property owned by Mrs. Cramer. She has other interests besides the garnet. Across the street from her office, she has 65 home plots of which 20 already have been

MRS. CRAMER'S office is a tiny building, cluttered with small and large rock samples, newsp per clippings, photos of

her late husband, her paintings and his inventions.

Besides being a geologist, Cramer also was a mining engineer, an inventor and a song

Finding mines runs in his family, recalled Mrs. Cramer.

She said Cramer's father was one of the '49ers who took part in the great gold rush in California. Later, in Kansas he opened a granite quarry whose stones were used in many projects, among them a courthouse in the state.

Mrs. Cramer said many friends have asked why she doesn't sell the place and leaver now that her husband has

passed away.
"I couldn't do that," said
Mrs. Cramer. "I thought I'd carry on the work to which he devoted so many years of his

life.
"I didn't think it right for his business to die with him."
Mrs. Cramer, a religious woman, said that staying here and "guarding the treasure" makes her feel closer to him.



Fox Hill Tower in Rockville's Henry Park used up 1,800 tons of building stones from the Tolland quarties of Mrs. Bruce Cramer. It is a memorial for Rockville veterans of all wars, was built in 1939.



Appendix G