

SCHOOL DISTRICT 85
VANCOUVER ISLAND NORTH

SUNSET ELEMENTARY
ASBESTOS SURVEY AND ASSESSMENT



Date: July 2009
NWEST File: 10561



North West
Environmental Group Ltd.

EXECUTIVE SUMMARY

North West Environmental Group Ltd. was retained by School District 85 to perform a survey for asbestos-containing materials (ACM) in Sunset Elementary. The objective of the project was to identify and assess asbestos-containing materials and to provide recommendations for the management of these materials.

The survey was conducted in July 2009.

The consultant visited the site and conducted a detailed survey for asbestos. The following was undertaken:

- A walk through of the area to determine the presence, location, quantity and condition of potential asbestos-containing materials;
- Non-intrusive sampling of building materials suspected of containing asbestos;
- Assessment of each suspect ACM;
- Analysis of suspect ACM by a laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP); and
- Development of a written asbestos-containing materials survey report detailing the methodologies, results, conclusions and recommendations as well as all supporting documents including a risk assessment of each ACM.

Materials Found to Contain Asbestos

Asbestos-containing drywall filler compounds were identified in the School.

These materials are in good overall condition and are unlikely to be disturbed during routine building activities. They can be managed in place.

These products should be removed prior to the start of any renovation or demolition activities.

All work should be carried out using modified moderate and high risk work procedures and be done by a qualified asbestos abatement contractor.

This report should only be interpreted by personnel trained and experienced in the management of asbestos-containing materials. Note that this document is not a comprehensive statement of materials that do not contain asbestos nor is it an absolute declaration of the location of all asbestos-containing materials. See Section 9 for a full disclosure of the limitations of the survey and report.

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TABLE OF ACRONYMS

Acronym	Explanation
ACGIH	American Conference of Governmental Industrial Hygienists
ACM	Asbestos Containing Materials
AMP	Asbestos Management Plan
EMA	Environmental Management Act
ISO/IEC	International Organization for Systematization
LQAP	Lab Quality Assurance Program of the ACGIH
NVLAP	National Voluntary Laboratory Assurance Program
USEPA	US Environmental Protection Agency

Cement Asbestos Board (CAB)	Sometimes called transite, fire board, glassboard
Drywall Joint Compound	Drywall filler, drywall joint compound. Drywall is also known as gyproc, gypsum board or sheet rock.
Caulking	Term used for firestopping, window putties, ductwork caulk, etc.
Ceiling Texture	Spray applied ceiling finish, sometimes used as a wall finish.
Skim Coat	Thin cementitious, material applied to walls, ceiling, and concrete surfaces.
Non-intrusive also termed Non-destructive	A form of sampling where care is taken not to damage finished building materials and surfaces.
Debris	Crumbled materials including vermiculite that require cleaning by qualified professionals.
Bulk Sample	Small representative samples of solid materials suspected of containing asbestos which are sent for analysis.
Vermiculite	Solid granular insulating material made of expanded mica which often contains asbestos.

ASBESTOS SURVEY AND ASSESSMENT Building

A. INTRODUCTION

North West Environmental Group Ltd. was retained by School District 85 to perform a survey for asbestos-containing materials (ACM) in Sunset Elementary. The objective of the project was to identify asbestos-containing materials and provide recommendations for the management of these materials.

The survey was conducted in July 2009.

B. SCOPE OF WORK

North West Environmental was requested to carry out a limited asbestos-containing materials investigation in the building. This investigation is intended to provide information about asbestos-containing materials that may be impacted by operations and maintenance activities. Further investigative work will need to be conducted prior to any future construction, renovation or demolition work.

The consultant visited the subject site and conducted a detailed survey of each accessible area for asbestos. The following was undertaken:

- A walk through of each accessible area on the site to determine the presence, location, quantity and condition of asbestos-containing materials;
- Non-intrusive sampling of building materials suspected of containing asbestos;
- Assessment of each suspect ACM;
- Analysis of suspect ACM; and
- Development of a written asbestos-containing materials survey report detailing the methodologies, results, conclusions and recommendations as well as including all supporting documents and a risk assessment of each ACM.

C. SITE DESCRIPTION

Sunset Elementary is a one story concrete block building located in Port McNeill. Additions do not appear to have been made to the building.

D. REGULATORY FRAMEWORK, GUIDELINES AND CODES

Federal and Provincial regulations apply to the treatment of asbestos in buildings. Further explanation of these regulations is included in Appendix 4.

E. METHODOLOGY

Asbestos samples were collected and analyzed in accordance with industry accepted

practices. Further details regarding these practices, survey methodologies and limitations are included in Appendix 5.

F. RESULTS AND DISCUSSION

The following materials were found to contain or are suspected of containing asbestos.

Material	Location	Assessment	Recommendation
Drywall Filler Compounds	Throughout School	Good condition, accessible, friable	Manage in Place

G. CONCLUSIONS

Based on findings of the visual assessment and analytical results, Northwest Environmental Group provides the following summary of conclusions regarding identified ACM in the subject site. Note that concrete blocks may be filled with asbestos-containing vermiculite.

Asbestos-containing drywall filler compounds have been identified in throughout the School. These materials are in good condition and unlikely to be damaged during routine building activities.

Materials that will be disturbed by renovation or demolition activities must be removed prior to the start of this work.

H. RECOMMENDATIONS

Site Specific Recommendations

Asbestos containing drywall filler compounds are unlikely to be damaged during routine building activities. This product can be included in the Asbestos Management Plan and managed in place.

Generic Recommendations

Based on the above stated conclusions, the following recommendations are provided.

- 1.0 Provide copies of this report, or a summary thereof, to site personnel as required, including contractors.
- 2.0 Label all identified ACM if they are not to be removed as part of upcoming renovations.
- 3.0 ACM in good condition should be controlled through the implementation of the Asbestos Management Plan designed to meet the requirements of WorkSafe BC.
- 4.0 Inspect all identified asbestos-containing materials annually to identify any damage and ensure proper labeling is present.
- 5.0 Suspect materials encountered when inaccessible locations are exposed should be left undisturbed until sample analysis determines if asbestos is present.

Managing ACM:

- a. Any damaged ACM found during future inspections, as well as ACM that could be impacted by any demolition or renovation activity, should be removed following procedures outlined in Part 6 of the BC Reg. 296/97 as amended by BC Reg. 301/2004. The work must be completed following procedures outlined in Part 6 of the BC Reg. 296/97 as amended by BC Reg. 301/2004. As of the date of this report, these procedures meet the requirements of the federal Department of Labour.
- b. Throughout the abatement activities, appropriate air monitoring and inspection should be conducted by qualified personnel to ensure all contamination is contained and ACM are disposed of appropriately. It is recommended that proper scope-of-work and asbestos-removal specifications be written to ensure the complete and proper removal of all ACM.

I. CLOSURE

This asbestos survey and assessment report has been prepared exclusively for School District 85 and is intended to provide a delineation of the presence and condition of asbestos-containing materials as observed on the date this survey was conducted. The conclusions and recommendations contained in this assessment report are based upon professional opinions with regard to the subject matter. These opinions are in accordance with accepted hygiene assessment standards and practices applicable to

these locations and are subject to the following inherent limitations:

The data and findings presented in this report are valid as of the date of the investigation. The passage of time, manifestation of latent conditions or occurrence of future events may warrant further exploration at the properties, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report.

The data reported and the findings, observations and conclusions expressed in this report are limited by the Scope of Work. The Scope of Work was defined by the request of the client, the time and budgetary constraints imposed by the client, and availability of access to the properties.

Because of the limitations stated above, the findings, observations and conclusions expressed by North West in this report are not, and should not be, considered an opinion concerning compliance of any past or present owner or operator of the site with any federal, provincial or local laws or regulations.

No warranty or guarantee, whether expressed or implied, is made with respect to the data or the reported findings, observations, and conclusions, which are based solely upon site conditions in existence at the time of investigation.

This report may not be used, relied upon, copied, published, or quoted by any party other than the University of Victoria without the written consent of North West Environmental Group, Ltd. Other parties reading this report must independently verify the completeness and accuracy of this report and its contents.

This report and the surveys focused on the presence of building materials and systems that may contain asbestos, lack of commentary or other types of potential hazardous conditions in no way represents a tacit endorsement of such conditions.



Robert Christie, B.Sc., MBA, CIH
Principal




Grant Rogers
Senior Occupational Hygienist

Notice to Reader:

Materials of similar type or appearance that may be found in other locations must be considered to be asbestos-containing until proven otherwise through a risk assessment is carried out by a qualified person. In any event, a risk assessment must be carried out by a qualified person if the suspect material is to be worked upon or disturbed.

**APPENDIX 1: PHOTOGRAPHS ILLUSTRATING
LOCATIONS OF SAMPLES**

	
<p>Sample #1: Drywall Filler Site: Janitor Room Asbestos: None Detected</p>	<p>Sample #2: Pipe Elbow Site: Janitor Room Asbestos: None Detected</p>
	
<p>Sample #3: Sheet Flooring Site: Janitor Room Asbestos: None Detected</p>	<p>Sample 4#: Drywall Filler Site: Electrical Room Asbestos: Chrysotile</p>

	
<p>Sample #5: Pipe Elbow Site: Gym Mezzanine Book Stores Asbestos: None Detected</p>	<p>Sample #6: Drywall Filler Site: Gym Mezzanine Boy's Room Asbestos: None Detected</p>
	
<p>Sample #7: Floor Tile Site: Gym Mezzanine Asbestos: None Detected</p>	

APPENDIX 2: SUMMARY OF SAMPLE RESULTS

Table 1: Results of Asbestos Analysis



Asbestos Analysis of Bulk Materials using Polarized Light Microscopy

#3 – 835 Devonshire Road
Victoria, B.C. V9A 4T5

Tel:250-384-9695
Fax:250-384-9865
e-mail:northwest@nwest.bc.ca

Client: **School District 85 - Vancouver Island North**

Tuesday, August 18, 2009

Site: **Sunset Elementary**

Client Job or PO # 0
NW Project Number: **10561**

Sample Number	Location	Date Analysed	Analyst	Description	Phase	%	Asbestos	%	Other Materials	%
10561-01	Janitor Room	08/17/09	EM	Drywall Filler	White Non-Fibrous Heterogeneous	100	None Detected	0	Non-Fibrous	100
10561-02	Janitor Room	08/17/09	EM	Pipe Elbow	White Fibrous Heterogeneous	100	None Detected	0	Non-Fibrous Mineral Wool Cellulose	45 40 15
10561-03	Janitor Room	08/17/09	EM	Sheet Flooring	Red Non-Fibrous Heterogeneous	100	None Detected	0	Non-Fibrous	100
10561-04	Electrical Room	08/17/09	EM	Drywall Filler	White Non-Fibrous Heterogeneous	100	Chrysotile	< 1	Non-Fibrous	100
10561-05	Gym Mezzanine Book Storage	08/17/09	EM	Pipe Elbow	White Fibrous Heterogeneous	100	None Detected	0	Non-Fibrous Mineral Wool Cellulose	45 45 10
10561-06	Gym Mezzanine Boys Dressing Room	08/17/09	EM	Drywall Filler	White Non-Fibrous Heterogeneous	100	Chrysotile	2	Non-Fibrous	98
10561-07 Layer 1	Gym Mezzanine	08/17/09	EM	Floor Tile	Beige Non-Fibrous Heterogeneous Tile	80	None Detected	0	Non-Fibrous	100
10561-07 Layer 2	Gym Mezzanine	08/17/09	EM	Floor Tile	Yellow Non-Fibrous Homogeneous Mastic	20	None Detected	0	Non-Fibrous	100

Note: Samples were analyzed by method: EPA/600/R- 93/116 "Bulk Asbestos Analysis by Polarized Light Microscopy". For heterogeneous materials the concentrations may vary. No reproduction without permission.



APPENDIX 3: ANALYTICAL LABORATORY REPORT


EMSL Analytical, Inc.

107 Haddon Ave., Westmont, NJ 08108

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

Attn: **Janet Peto**
North West Environmental
#3-835 Devonshire Road
Victoria, BC V9A4T4

Fax: (250) 384-9865 Phone: (250) 384-9695
 Project: 10561 SCHOOL DISTRICT 85 VANCOUVER ISLAND NORT

Customer ID: PAEC50
 Customer PO:
 Received: 08/14/09 9:40 AM
 EMSL Order: 040920498
 EMSL Proj:
 Analysis Date: 8/17/2009

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
10561-01 040920498-0001	JANITOR ROOM	White Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
10561-02 040920498-0002	JANITOR ROOM	White Fibrous Heterogeneous	40% Min. Wool 15% Cellulose	45% Non-fibrous (other)	None Detected
10561-03 040920498-0003	JANITOR ROOM	Red Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected
10561-04 040920498-0004	ELECTRICAL ROOM	White Non-Fibrous Heterogeneous		100% Non-fibrous (other)	<1% Chrysotile
10561-05 040920498-0005	GYM MEZZANINE BOOK STORAGE	White Fibrous Heterogeneous	45% Min. Wool 10% Cellulose	45% Non-fibrous (other)	None Detected
10561-06 040920498-0006	GYM MEZZANINE BOYS DRESSING ROOM	White Non-Fibrous Heterogeneous		98% Non-fibrous (other)	2% Chrysotile
10561-07-Floor Tile 040920498-0007	GYM MEZZANINE	Beige Non-Fibrous Heterogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

Steven Reynolds (8)

 Stephen Siegel, CIH, Laboratory Manager
 or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. The limit of detection as stated in the method is 1%. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. The test results meet all NELAC requirements unless otherwise specified.

Samples analyzed by EMSL Analytical, Inc. Westmont 107 Haddon Ave., Westmont NJ AIHA IHLAP 100194, NVLAP Lab Code 101048-0, NYS ELAP 10872, NJ DEP 04006

Test Report PLM-7.12.0 Printed: 8/17/2009 6:48:28 PM

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EMSL Analytical, Inc.

107 Haddon Ave., Westmont, NJ 08108

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

 Attn: **Janet Peto**
**North West Environmental
#3-835 Devonshire Road
Victoria, BC V9A4T4**

Fax: (250) 384-9865

Phone: (250) 384-9695

Project: 10561 SCHOOL DISTRICT 85 VANCOUVER ISLAND NORT

Customer ID: PAEC50

Customer PO:

Received: 08/14/09 9:40 AM

EMSL Order: 040920498

EMSL Proj:

Analysis Date: 8/17/2009

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
10561-07-Mastic 040920498.0007A	GYM MEZZANINE	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

Steven Reynolds (8)

 Stephen Siegel, CIH, Laboratory Manager
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. The limit of detection as stated in the method is 1%. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. The test results meet all NELAC requirements unless otherwise specified.

Samples analyzed by EMSL Analytical, Inc. Westmont 107 Haddon Ave., Westmont NJ 08108. NVLAP Lab Code 101040-0, NYS ELAP 10872, NJ DEP 04006

Test Report PLM-7.12.0 Printed: 8/17/2009 6:48:29 PM

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APPENDIX 4: REGULATORY FRAMEWORK, GUIDELINES AND CODES

A. FEDERAL OCCUPATIONAL HEALTH AND SAFETY

In federally regulated workplaces, the management of ACM falls under the *Canada Labour Code, Part II*. Specifically, *Part X, Hazardous Substances*, provides the direction for the control of exposure to potentially toxic substances in the workplace. Under this regulation, employers are required to:

- Maintain a record of all hazardous materials;
- Undertake a hazard investigation by competent person;
- Ensure materials are properly stored and handled;
- Post warning signs;
- Inform and educate employees regarding hazards; and
- Control exposure through substitution, engineering or protective equipment

B. PROVINCIAL OCCUPATIONAL HEALTH

Workplace health and safety is regulated in British Columbia by WorkSafeBC under the *Workers' Compensation Act* (effective April 15, 1998), as amended by *Workers' Compensation (Occupational Health and Safety) Amendment Act* (effective October 1, 1999). The Act defines the general duties and obligations of the employer, employees and others at the work site. The Occupational Health and Safety Regulation sets out specific performance requirements for all asbestos work, construction activities and worker safety.

WorkSafeBC has published *Safe Handling of Asbestos, A Manual of Standard Practices*. This manual outlines basic information on asbestos products, health hazard requirements for worker protection, safe work procedures and principles that should be followed in selecting the most suitable technique for the safe abatement of ACM. This document, which provides a guide to current accepted practices for asbestos work, is to be followed in the Province of British Columbia.

1. ENVIRONMENTAL

The Environmental Management Act (EMA), brought into force in July 2004, is the principle environmental statute in British Columbia. The EMA prohibits the introduction of waste into the environment in such a manner or quantity as to cause pollution, except in accordance with a regulation, permit, approval or code of practice issued under the Act. The Hazardous Waste Regulation (HWR) addresses the proper handling and disposal of hazardous wastes, under provisions of the EMA.

2. TRANSPORTATION

The shipping and handling of friable asbestos-containing materials and wastes are regulated under the Canadian Transportation of Dangerous Goods Act and Regulations, which outline the requirements for storage, handling and transportation of such materials. In addition, transporters of friable asbestos wastes require licensing by the Province which also tracks the generation, transport and disposal of these materials through a system of waste manifests. On public roads, the Province regulates the transport of these materials under the BC Transport of Dangerous Goods Regulation.

APPENDIX 5: SURVEY METHODOLOGIES

A. ASBESTOS SURVEY

The results of the survey determined the type and extent of ACM in the subject site. The survey was non-destructive and therefore did not include areas that were inaccessible at the time of the survey.

Identified suspect ACM were systematically sampled and recorded. Samples of suspect ACM samples were analyzed for asbestos type and percentage content using Polarized Light Microscopy (PLM) in accordance with U.S. Environmental Protection Agency (USEPA) methodologies and dispersion staining techniques (40 CFR Part 763, Vol. 52, No. 210).

Suspect ACM were identified, sampled and were submitted to EMSL Westmount, New Jersey for asbestos content analysis. EMSL is a certified under the American Industrial Hygiene Association Lab Quality Assurance Program (LQAP, thereby conforming to the ISO/IEC 17025:2005 International Standard, "General Requirements for the Competence of Testing and Calibration Laboratories" number 100194.

Appendix 2 provides a complete listing of all materials sampled.

Appendix 3 contains the analytical laboratory results.

The report provides a statement of the asbestos content of materials the surveyor was able to sample on the date of the survey. A variety of materials that were not accessible were not sampled. Materials that were not sampled must be reviewed for asbestos content prior to being disturbed.

B. RISK ASSESSMENT METHODOLOGY

As part of the survey of ACM, a risk assessment was completed. The results of this risk assessment for the confirmed ACM are presented in Section 6.

C. LIMITATIONS OF SURVEY

This document details the methodology, findings and conclusions of the asbestos survey and assessment conducted on the subject site on the day of sampling.

Analytical results included in the report reflect the sampled materials at the specific sample locations. Visually similar materials were referenced to specific analyzed samples.

The survey of the building did not include destructive sampling which would permit an intrusive investigation of inaccessible wall and ceiling cavities. Limited access into interior and perimeter walls, voids crawlspaces, and mechanical shafts was obtained for the investigation of insulation materials. It is possible that ACM are present in these areas but was not identified. If materials suspected of containing asbestos are encountered during future renovations or demolition, they should be treated as asbestos-containing until proven otherwise. Locations and building materials that have not been surveyed should be considered potentially asbestos containing until such time as they can be evaluated by a qualified person.

Vinyl tile or sheet flooring or other materials may be present under carpets, cabinets, frame walls and subfloors in various offices and corridors throughout the buildings. This

could not be confirmed without causing damage to the carpets, these materials were not sampled. If encountered during future renovations, sampling and analysis for asbestos content would be required prior to disturbance of the concealed flooring materials.

Roofing materials may contain asbestos, however, due to the potential for damage to the building and its contents, full depth roofing core samples were not obtained from the roofing systems. Roofing materials should be sampled and analyzed for asbestos prior to disturbance in the event that roof repairs or replacement is required.

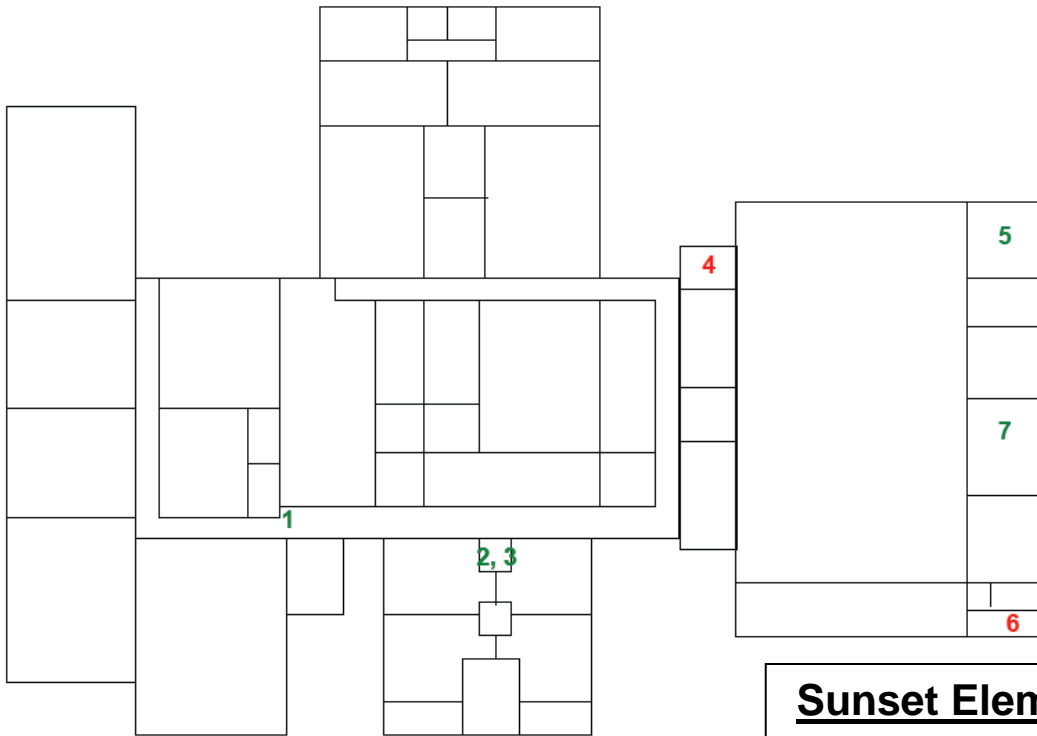
All vermiculite insulation should be considered as asbestos containing until such time as a comprehensive destructive testing sampling program is carried out within the building or structure. Asbestos-containing vermiculite should be considered present within all concrete block walls, voids, and spaces including attics, walls, ceiling and floor voids.

Some materials cannot be reasonably surveyed. A variety of materials should be reviewed aside from the asbestos survey prior to renovations or demolition activities. These materials include but are not limited to:

- Internal contents of Fire Doors
- Fire Hoses
- Materials inside double wall metal chimney sections
- Concealed roofing, caulk and felts,
- Internal parts of appliances and white goods
- Internal contents of oil stoves, furnaces, hot water heaters, (see white goods), boilers, and generators
- Vermiculite in walls that do not have existing penetrations
- Buried cement pipes
- Insulation within built-in coolers or air conditioners
- Gaskets in pipe flanges and valves
- Caulk, putty, filler, cord, tiles, gland packing, etc. in shop use in inventory
- Resin composite furniture (often student-style chairs and desks).

An asbestos risk assessment must be completed prior to any removal and/or alteration work in or on a building. Removal and/or alteration work requires control measures to be implemented in accordance with Work Safe B.C. Regulations and the requirements of the building owner's specific requirements. Protective personal equipment is required during any work or major alteration that may disturb synthetic or asbestos insulation and/or dust that may be present.

APPENDIX 6: SAMPLE LOCATION DRAWING



Sunset Elementary School

- 1** Non Asbestos containing sample location
- 6** Asbestos containing sample location

*NOTE: Concrete block walls may be filled with Asbestos containing Vermiculite