# Blackie Hall Report

**October 5, 2022**

| COMMUNITY SERVICES DEPARTMENT | |
|---|---|
| FOOTHILLS COUNTY | TOPIC: Blackie Community Hall Report |
| | |
| REPORT PREPARED BY: Jeff Porter<br>REPORT PRESENTED BY: Jeff Porter | |

COMMUNITY SERVICES ITEM
REPORT TO COUNCIL
*Date: October 5, 2022*

## PURPOSE OF REQUEST

To provide to Council information regarding the history, inspections and current condition of Blackie Community Hall so that direction can be given to administration as to how Council would like to proceed with the future of the facility and property.

## BACKGROUND

The Blackie Community Hall was built in the 1960's and was operated by the Village of Blackie until it's amalgamation with Foothills County in 1997.

In 2016 the County hired W. Vaile Engineering & Design to assess the hall. During this assessment structural deficiencies were found and subsequently a foundation repair expert conducted an inspection and provided a quote for the work needed. Additional plumbing issues were also identified that limit hall capacity numbers.

In 2018 the County, Foothills School Division and the Province of Alberta began discussions of the integration of a Community Hub into the Blackie School and the potential of a school renovation. Representatives from the Blackie Lions, Blackie Community Association and Blackie School Parents were involved in the initial visioning, concept, planning, and completion of the project.

With the completion of the Blackie School Modernization in 2022 the County hired Wood Environmental and Infrastructure Solutions Ltd. to conduct a hazardous materials inspection of the facility and provide a costing of the remediation. In addition, Bob Wallace Excavating was consulted to provide a quote for the cost of remediation of the site.

All the above documents are provided in this report for Councils review.

## REQUEST OF COUNCIL

To provide administration direction as to how Council would like to proceed with Blackie Hall and property.

## APPENDICES

APPENDIX A:

W. VAILE ENGINEERING AND DESIGN REPORT

ALBERTA FOUNDATION AND CONCRETE LIFTING LTD. QUOTE

WOOD ENVIRONMENTAL AND INFRASTRUCTURE SOLUTIONS LTD. REPORT

BOB WALLACE EXCAVATING QUOTE

**W. VAILE ENGINEERING & DESIGN LTD.**
ENGINEERING CONSULTANT
[redacted]
e-mail [redacted]

Our File: 201516 – **1189**
Date: April 19th, 2016.

**MUNICIPAL DISTRICT of FOOTHILLS NO. 31**
309 MACLEOD Trail SW P.O. Box 5605
High River, Alberta. T1V 1M7
Attention: **RYAN PAYNE,** Director Community Services
ryan.payne@mdfoothills.com ph (403) 603-6214

**RE: FACILITY INSPECTIONS – BLACKIE COMMUNITY HALL**
**@ 1205 Railway Avenue**

We initially inspected the Blackie Community Hall facilities in the fall of 2015 on September 20th and 21st. We completed an additional detailed foundation inspection on January 24th, 2016.
Following are our findings:

## GENERAL DESCRIPTION & OBSERVATIONS:

The Blackie Hall is an arch rib 'quonset' structure measuring just over 90' long and just over 40' wide. It is thought to be originally built in 1962. The structure is supported by a concrete wall foundation. The structure is protected with a 26 gauge exterior metal cladding.
Sketch **SK-1** shows a typical cross section of the structure.
These structures were very popular for a decade or two and are quite commonly found widely spread over the western provinces in small towns and on farms. They typically exhibit a sway back deflection in the roof ridge lines. A lot of times this deflection has been enhanced by renovations and arch ribs being either cut or tampered with. For the Blackie Community Hall structure, there appears to be minimal sagging to the middle of the roof ridge. We found no structural tampering to the members at the mid spans where the problems normally occur. Both side entries are at the south end. Arches are less vulnerable, the further they are from the centre of the building and the closer they are to the ends.
We found no signs of roof leakages and no signs of mold as a result of the roof truss assemblies.

There are two operating floor levels at the hall.
The main floor is (7) risers above the main entry landing and the basement floor is (9) risers below the main entry landing. The main entry doors are at street level with access off of Railway Avenue on the north end of the facility. There is a side egress entrance and fire escape provided on each of the south east and south west corners of the building.

The main floor consists of a multi-purpose gathering hall as the main feature.
The main floor also contains a Coat Check room in the NW corner and a Dry Bar in the NE corner. These rooms are on either side of the interior front entry steps.
The south end of the main floor hall features a raised stage which measures 24' wide by 16' in depth. Theatre obviously played a big role in the life of the hall at some point in the not too distant past.
The main floor is totally clear spanned and has a ceiling height of 13' to the underside of the arch rib collar ties. Sketch **SK-2** shows the current main floor layout plan.

The lower basement floor features another gathering Hall. This hall is built around steel telepost columns which support the main floor wood frame assembly above. There is a large all-be-it dated community kitchen in the SW corner. Washrooms are in the SE corner. A small mechanical room is dead centre along the south end wall. There is a Janitorial room beneath the upstairs coat check room and a Lions' Club room underneath the upstairs Dry Bar. Sketch **SK-3** shows this existing floor layout.

It appears as though a 4" leveling layer of concrete was placed over the entire original basement concrete slab on grade at some time. There is a 4" drop at the Janitorial door to substantiate this finding. This pour messed up the continuity of the rise / run of the stairs leading up to the front entry landing.
The basement floor is finished with 12" x 12" battle ship vinyl tile surface. These tiles should be tested for Asbestos and above all should not be disturbed without the proper masks and precautions.

First and foremost is an observation from our structural engineering point of view regarding the status of the building's foundation and to determine whether this building is of a good quality and is an economically viable candidate for renovations or upgrading.

We initially observed serious spalling of the exterior concrete foundation walls which are exposed to the natural elements at grade ground levels surrounding the building.
Secondly we observed, numerous foundation cracks when circumnavigating the exterior.
At the time of our investigations the basement interior walls of the lower hall were furred and lined with paneling so we were unable to visibly check a lot of the inside faces of these concrete foundation walls. However, where auxiliary rooms were accessible, we were able to get good looks at other exposed interior basement concrete walls. They appeared to be very healthy and did not display any spalling similar to what was found on the exterior walls. Despite the history of Blackie having a high water table, we did not observe any glaring signs of foundation wall leaking. Sketch **SK-4** shows the approximate location and extent of visible foundation cracking.

We commissioned ALMOR TESTING SERVICES to complete a concrete analysis of the foundation walls to determine the outright health of the concrete. Their findings are enclosed in their September 23rd, 2015 letter report. They do not consider the cause of the exterior spalling to be from sulphate attack. They believe that the major problem with the concrete is that it was not air entrained. Air entrainment provides concrete with the ability to resist the cycling forces of freezing and thawing.
Given that the interior concrete surfaces are healthy, Almor has suggested a method of repair to stop the spalling penetration. Furthermore, we suggest that the interior walls should be insulated with at least R12 rigid styrofoam insulation. This will eliminate the effective heat loss from the building which negatively affects the freeze/thaw cycle.
We have also requested that Alberta Foundations Ltd. provide a construction cost estimate to repair the foundation walls as per our design sketch **SK-5.**
This cost estimate is not enclosed in this report. It will be forwarded when available.
This cost estimate is intended to aid the MD's considerations when weighing the future of this structure.

Secondly, the southeast egress was found to be in rough condition. Concrete cracks in the foundation walls are large open cracks and are structurally unacceptable.
Furthermore the upper wood framed steps, accessing the main floor, are not code compliant in width nor in rise / run. The lower concrete steps are also suspect for code compliancy. The upper exterior shell appears to have been added onto the main rib truss building in a very acceptable manner. There does not appear to be any leaking from the addition assembly.

Thirdly, from a safety point of view, we discovered that the Front Entry stairs have uneven risers throughout the flights. The first flight from the entry landing to the top of the finished main floor has (7) risers and a vertical distance of 49". However the bottom step is 7 1/8" high and the top step is 6 1/8" high.
The basement flight is even more uneven with (9) risers. The bottom step is only 3 1/2" high, mostly due to the added slab on grade. And the top step is 5 3/4" high. The balance of the middle risers in this flight are at 6 3/4" each. The total vertical for this flight is 56".
The flights need to be reconfigured so that all risers are at 7" high. This would allow for (7) risers on the upper flight and (8) risers on the lower.
All runs are currently @ 11.5". This is a very comfortable tread width and we recommend that it stays at 11.5" for the new flights.

**ROOM DETAILS:**

**THE UPPER HALL:**
Measures 38'-4" wide x 74'-8 " long. It is clear span with 13' ceilings. Emergency egress is provided at the SW and SE corners. A front stage from live theatre days cuts into the front of the hall. There is a Coat Check room and a Dry Bar room at the north end on either side of the main entry steps. There are no washrooms on this level.

There is a small attic loft above the Coat Check Room. It is mostly used for extra storage but it does contain a large gable end power vent. This is the extent of any attic venting. The main hall relies on ceiling circulation fans to cope with air quality comfort.

**THE LOWER HALL:**
There are (2) rows of steel columns running the entire length of this room. The room measures 38'-4" wide x 61'-0" long. The walls are paneling over the concrete foundation with no insulation. There are no windows. Ceiling height is 7'-6" to the underside of the finished floor assembly of the hall above.
Additional emergency egress is up and out through the SE entrance.

**MECHANICAL ROOM:**
The **Main Electrical Panel** is full. It appears as though a lot of breakers are not being used, so just cleaning up old abandoned circuits could free up a lot of spaces. The overhead lighting for the theatre projects has not been used for many years.

An open sump pit set into the floor, requires a proper cover plate to allow for safe passage for anyone in the mechanical room.

The Mechanical Room houses (2) Natural Gas fired Furnaces and a Hot Water Tank.
All of the furnaces are of older vintage but appear to be in satisfactory working order and also appear to be serviced on a regular yearly basis.
**Refer to SKETCH SK-3**.

**KITCHEN:**
The kitchen takes up about 400 square feet in the SW corner of the lower basement. The kitchen equipment is showing its age. All appears to be in need of replacement. The venting of the cooking appliances and the commercial grill is of vital concern. There appears to be plumbing leaks in the water lines which feed to the middle island sinks. There are community wishes floating about regarding moving the kitchen to an adjacent building with access to both halls. This would be the perfect time to make this move as there is really nothing of value in the existing downstairs kitchen. A lot of money can be spent in this area to fully modernize the kitchen and make it fully operational. We are estimating in the $40,000 to $50,000 range to accomplish this.

We have also requested that A&S MECHANICAL provide a kitchen equipment analysis and a mechanical, heating and air conditioning overview with their recommendations. I am still hopeful that this is forthcoming.

**WASHROOM CAPACITIES:**
The Ladies' Washroom is located along the back south wall in the basement. It measures 13'-0" long x 9'-3" wide and contains 2 stalls & 2 basins.
The Mens' Washroom measures 12'-6" long x 7'-0" wide and is back to back with the Ladies' facility with a common plumbing corridor between them. It contains 1 stall, 1 urinal, and 1 basin.

**JANITOR ROOM:**
This room is located in the NW corner of the basement and is basically an empty utility room. It measures 12'-10" x 14'-6". It's floor is the original concrete slab.

**LIONS' CLUB ROOM:**
This room is the identical same size as the Janitor Room and is located in the NE corner of the basement. It is fully dedicated to the Lions' Club of Blackie. There is addition storage in the adjacent space under the front entry landing and stairs.

## CONCLUSIONS & RECOMMENDATIONS:

1. The Blackie Community Hall building has a concrete wall foundation which is showing signs of exterior deterioration from spalling as well as vertical cracking from a number of possible climate and site related causes. We have had the existing concrete tested and the results indicate that a substantial quantity of the concrete is healthy and it has been determined that the concrete damage, to date, can be arrested . In this report, we have included a foundation repair cost (from Alberta Foundations Ltd.) for the MD to consider, if it wishes to save this hall and prolong its life. The option to pour a brand new foundation would ultimately involve a new above ground superstructure as well.

Saving the old hall is not a perfect structural scenario either, as its inner workings will require a substantial bit of rebuilding and modifications to the entry stairs to make them code compliant.
Furthermore, the east side egress addition is in bad shape and is not code compliant and simply needs to be totally removed and rebuilt. It is hoped that the upper level tie-in to the arch-rib structure can be utilized with little disturbance to the adjoining connections. Also note that insulating the basement interior foundation walls is part of the proposed (3) sided foundation repair.

2. The Blackie Community Hall building is a wood frame arch-rib structure which we found to be structurally sound. NO wood framing structural action is necessary!
The building is classified as **Group A, Division 2** as per section 3.1.2.1 of the current 2006 Alberta Building Code and is considered to be 1 storey with basement. Both floors are accessible from a common front entry.
The community hall capacity as per section 3.1.17.1 of the current 2006 Alberta Building Code is $0.95m^2$ per person = 10 $ft^2$ per person. The Blackie Community Hall has approximately 2,800 $ft^2$ of hall space on each floor. This translates to 280 maximum capacity per floor or 560 total for the entire facility. The existing washroom capacities actually over rule this capacity.

As interpreted from the current 2006 **Alberta Building Code, Section 7.2.2.6.(3)**, capacities for existing water closets in washrooms at the Blackie Community Hall limit the number of users to 50 females and 50 males = 100 maximum.

For example, in order to increase the hall capacity to 500 we would require the washroom facilities to include (6) Female stalls, (3) Male stalls, & (3) Male urinals.
Furthermore there is the requirement for a handicap wheelchair accessible washroom.

3. The roof arch-rib assembly is deemed to be structurally sound.
The metal cladding is in relatively new condition with almost full warranty still available. No roof surface action is required at this time.
We do recommend that additional blow-in insulation be installed to all roof cavities, wherever possible, for example above the ceiling collar ties. We encourage a gable roof vent to be installed in the south end to improve proper cold roof ventilation.

4. The existing southwest egress is to be renovated by rebuilding the floor, adding a landing, leveling & insulating, adding new stairs & railings, closing the north door and upgrading the south door. It is hoped that the upper level metal cladding tie-in to the arch-rib structure can be re-used without disturbance.

5. We recommend that an effort be put forth to improve the leveling of the main floor. There are a number of floor joists that appear to need replacing or shimming in order to accomplish this task. There are variations from 3/8" to 1/2" both highs and lows. The floor joists may require cross bridging in these areas to stabilize the changes.

6. **MECHANICAL EQUIPMENT:**
We did not assess any Kitchen equipment at this time. However, our general impression is that all of the equipment is time dated and is in need of being upgraded and replaced. The venting of cooktops and plumbing fixtures will also require substantial time to bring up to acceptable code requirements. The kitchen should be re-evaluated once the structural concerns are mitigated.

7. General Finishing and Painting conditions;
Note that throughout the interior rooms on both floors, there are minor evidences of drywall cracking. We have determined that these are of non-structural concerns.
For the most part all drywall cracking throughout is attested to be of substandard quality and can be simply repaired by re-taping & re-mudding. For the major cracks, ensure that backing is provided to secure the drywall prior to repairing. We will make no further comments on the existing painting quality as repainting will be required after drywall repairs are completed.

8. There are no windows in this structure. No roof leaking evidence was noted.

9. The (4) exterior steel doors are found to be reasonably sound and all panic egress hardware is adequate. The (2) wash room doors need to be upgraded with new replacements. The interior door at the Mechanical room is binding and requires adjustment.

10. The general conditional status of the vinyl tile floors is actually quite acceptable when one considers their age. Although Asbestos content is suspected, we assume that there is no danger as long as they are not disturbed.

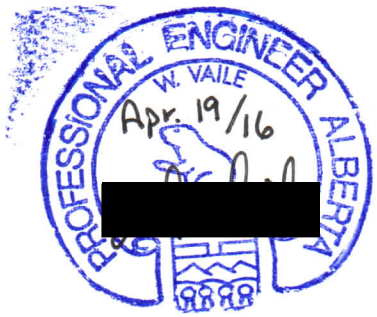
11. The existing Drywall Fire Guarding between floors needs to be upgraded. The separation between lower and upper halls requires 2 layers of 5/8" Type'X' particularly above the Kitchen. From what we were able to access and observe, we have determined that the balance of the Fire Drywall and Fire Taping and thus the Fire Rating for this structure remains acceptable.
The FIRE RATED OCCUPANCY CAPACITY should be posted clearly at the main door and in conjunction with the M.D. Fire Chief.
The building is NOT sprinklered. We recommend that this be considered.

12. We recommend that the AIR DUCTS throughout the building be scoped and that a thorough Furnace and duct cleaning be implemented. Check for mold contaminants.

13. A final wish list item is to install a handicap chair lift from floor to floor.

Basically our findings conclude that the BLACKIE COMMUNITY HALL building is a prime candidate for improvements and it is structurally worthy of our proposed repairs and upgrades. At this time, only MD budgeting can decide the fate of this facility. We suggest that associated costs for our extensive recommendations will be more effectively obtained through a bid process.

For any questions or further information, contact the undersigned.
Yours truly,




[redacted]

**W. Vaile Engineering & Design Ltd.**
per **Warren Vaile**, P.Eng.

Encl.
cc: Glenn Robertson [redacted]

ALMOR TESTING SERVICES LTD.

7505 - 40 STREET S.E., CALGARY, AB T2C 2H5 PHONE (403) 236-8880 • FAX (403) 236-1707

2015 09 23

099-73-15

W. Vaile Engineering & Design Ltd.

[redacted]

Attention: Mr. Warren Vaile, P.Eng. [redacted]

Re: Blackie Community Hall
1205 Railway Avenue
Blackie, Alberta

As requested, Almor Testing Services Ltd. visited the subject site on September 22, 2015, to evaluate the cause of surface spalling of the concrete, on the exterior of the foundation walls near grade.

The foundation walls support a quonset type building, with a full height basement, that we have been told, was constructed sometime in the 1960's.

The exterior of the foundation walls are backfilled to approximately 1.3m from the top of the walls. The exposed portion of the exterior of the walls have been parged and the grout parging is falling off at random locations, wherever the concrete is spalling.

Non-destructive Testing (Rebound Hammer), was performed on the exterior of all the walls at random locations, where the parging has fallen off. The Rebound Hammer tests yielded fairly consistent results of 11.0±3.2 MPa.

The majority of the basement walls were inaccessible for Rebound Hammer testing, due to wall panelling, kitchen equipment, etc.

Rebound Hammer readings were obtained on the interior of the walls in the Custodian's Storage Room and the Furnace Room, with fairly consistent compressive strength results of 27.6±5.5 MPa. No spalling was observed on the interior of the foundation walls accessible for observations, however a significant crack (approximately 12mm wide) that daylights to the outside was noted in the area of the doorway at the southeast corner of the building. This crack should be sealed to prevent the ingress of water and debris.

It should be noted that the Rebound Hammer test results are not reliable to provide definitively accurate strength data, but are useful to compare the indicated strength of concrete from location to location, within a structure.

If required, for structural considerations, accurate strength data can be provided by obtaining and testing drilled concrete cores, as per Canadian Standard Association Standard A23.2-14C.

.../2

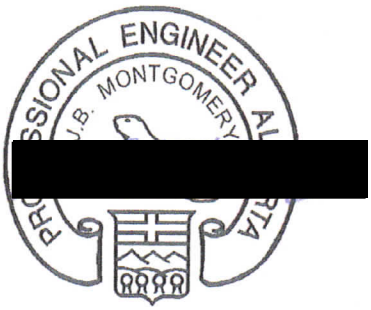
At the time of the site visit, a small area (approximately 1.0m x 0.8m) along the east wall had been excavated to a depth of approximately 0.6m. A soil sample taken from this excavation was tested in our laboratory for its Water Soluble Sulphate Content. The test yielded a sulphate content of less than 0.1%, which is considered to be low. We do not believe that the cause of the concrete spalling is due to sulphate attack from the site soils.

Given that the concrete on the surface of the interior of the foundation walls is visually sound (no observed spalling) and of reasonable compressive strength, it is most likely that the spalling on the exterior of the walls is due to the concrete being inadequately air entrained to resist the forces of constant cycling of wetting/drying and freezing/thawing.

A suggested method of repair would be to remove the weakened concrete by sand blasting or other mechanical means to a depth where sound concrete is found. The sound concrete could then be finished with the application of a water proof, cementitious or latex material applied in accordance with the manufacture's specifications.

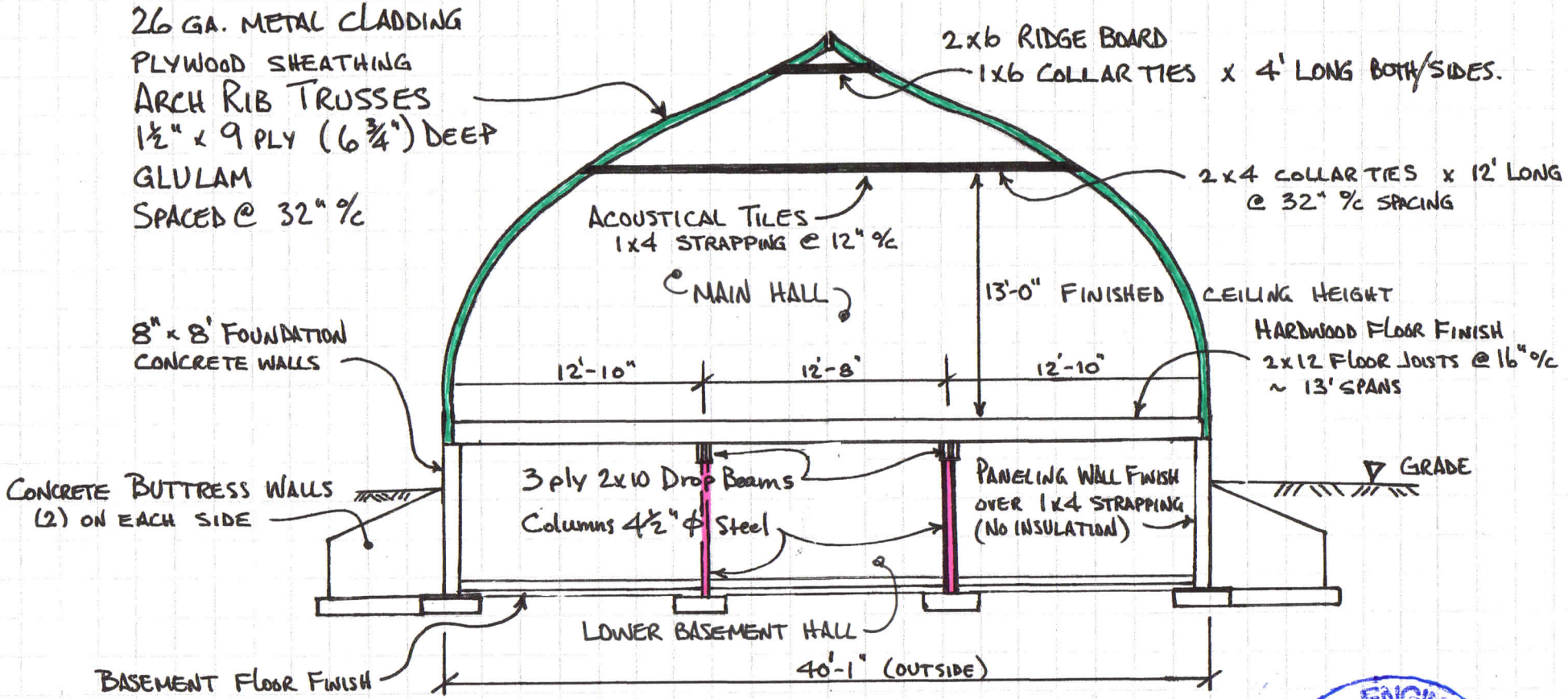
We trust this meets with your present requirements.

Respectfully submitted,
ALMOR TESTING SERVICES LTD.




* APEGA Permit to Practice #P2260

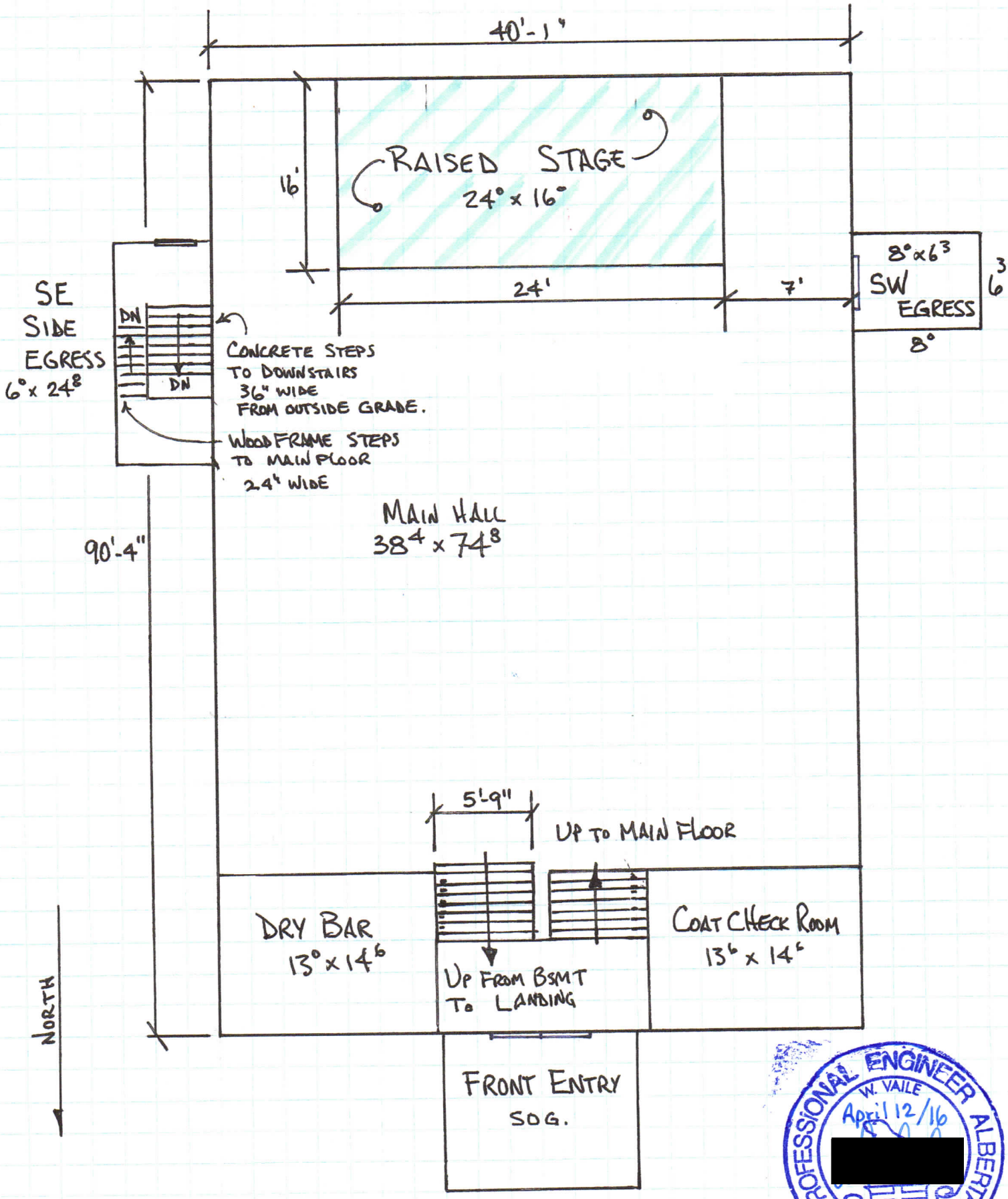
J.B. Montgomery, P.Eng.
JBM:ms:A05250




PROFESSIONAL ENGINEER ALBERTA
W. VAILE
April 12/16
[redacted]

# BLACKIE COMMUNITY HALL
## TYPICAL CROSS SECTION

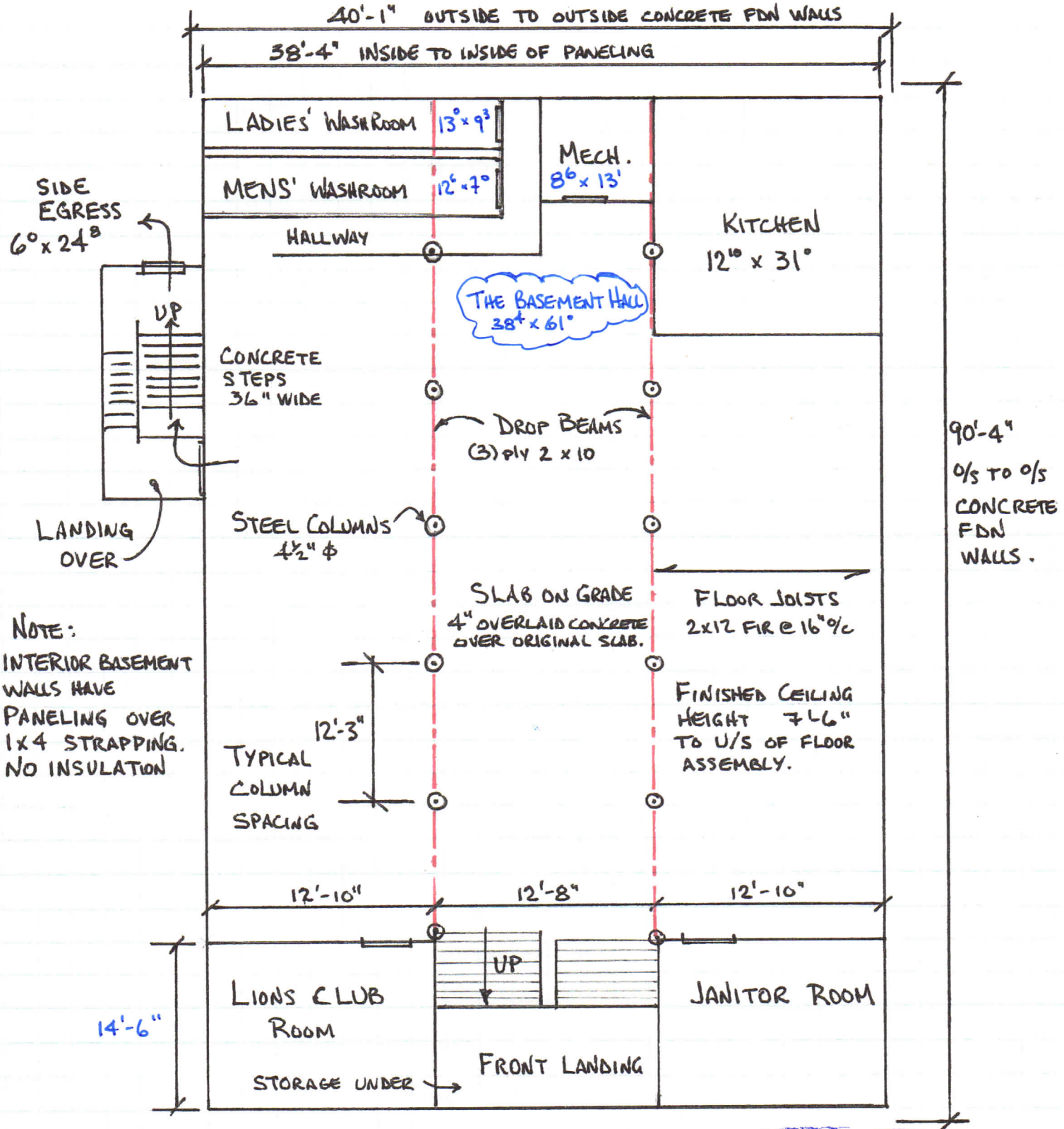
SK-1




BLACKIE COMMUNITY HALL
MAIN FLOOR LAYOUT
N.T.S.

← RAILWAY AVE. →

SK-2

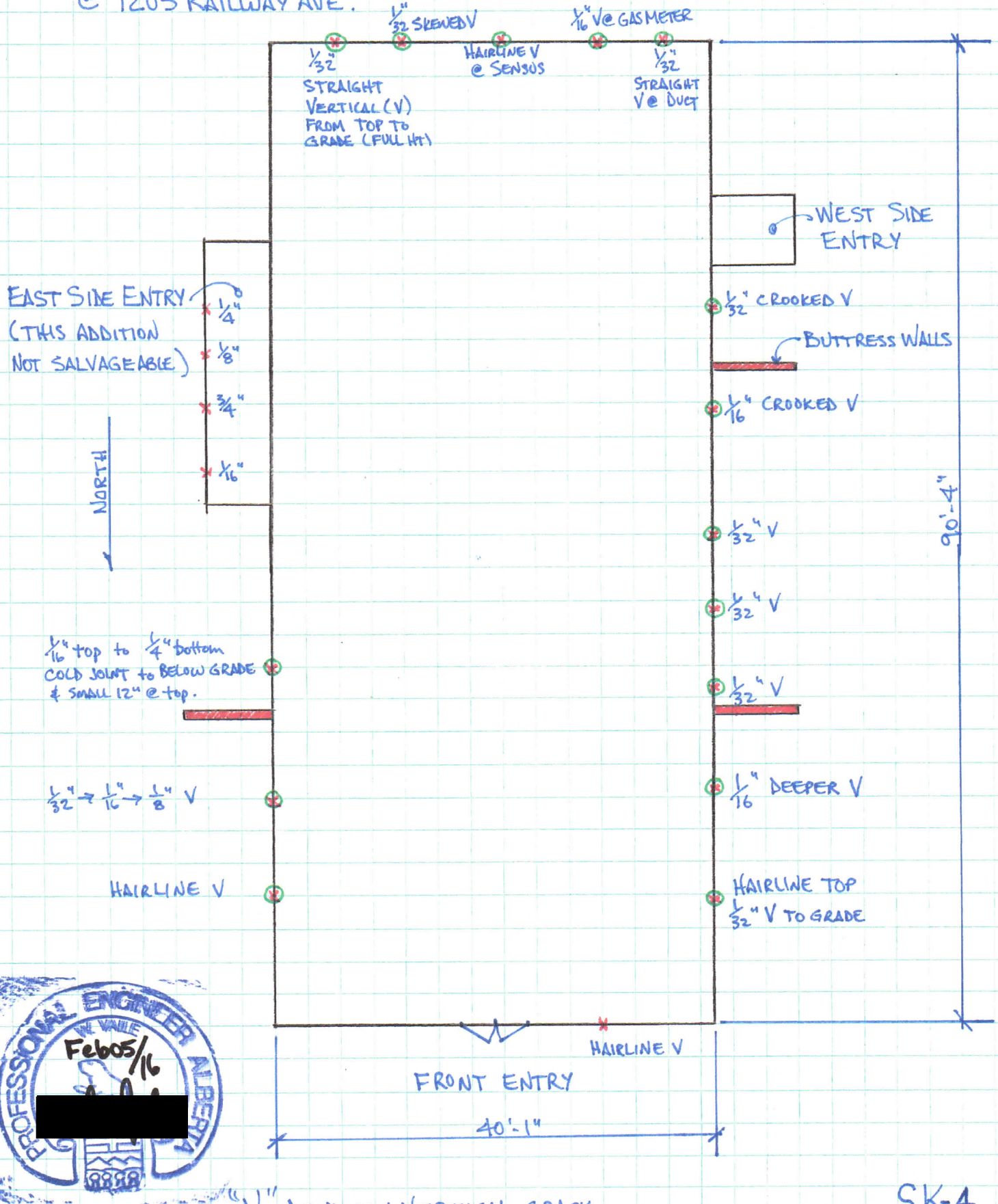


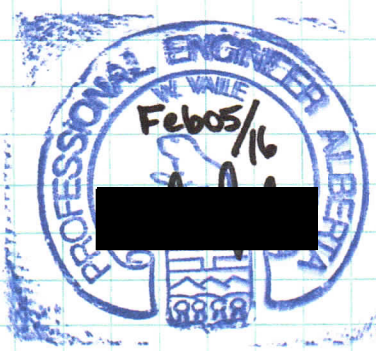

PROFESSIONAL ENGINEER ALBERTA
W. VAILE
April 12/16
[redacted]

# BLACKIE COMMUNITY HALL
## BASEMENT FLOOR LAYOUT
N.T.S.

SK-3

# BLACKIE COMMUNITY HALL
## FOUNDATION CRACKS
## FEBRUARY 2016.
## @ 1205 RAILWAY AVE.

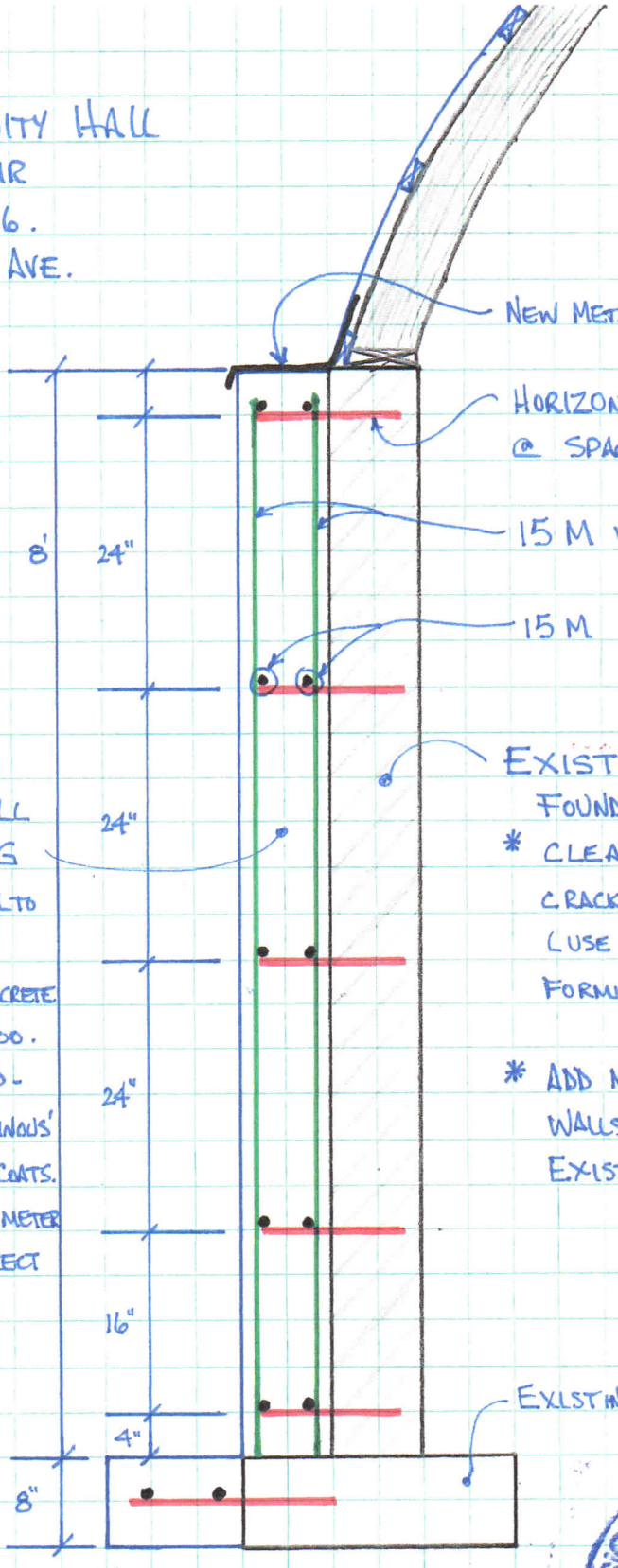



"V" DENOTES A VERTICAL CRACK.

SK-4

# BLACKIE COMMUNITY HALL
## FOUNDATION REPAIR
## FEBRUARY 2016.
## @ 1205 RAILWAY AVE.




NEW PROPOSED 8" FOUNDATION WALL STRENGTHENING

* ALL REBAR IN NEW WALL TO BE 15M.
* ALL EMBEDMENT INTO CONCRETE TO USE HILTI HIT 200.
* FINAL EXTERIOR DAMP-PROOFING TO USE 'BITUMINOUS' SPRAY ON APPLICATION (2) COATS.
* INSTALL PERMANENT PERIMETER DRAINAGE SYSTEM & DIRECT TO DRY WELL.

EXISTING 8" FOUNDATION WALL

* CLEAN OUT ALL EXTERIOR CRACKS & FILL WITH 'SIKAFLEX' (USE PRIMER) PRIOR TO FORMWORK FOR NEW WALL.

* ADD NEW 8" x 96" STRENGTHENING WALLS TO EAST, SOUTH, & WEST EXISTING WALLS.

EXISTING STRIP FOOTING

NEW FOOTING WIDENING
15M DOWELS EMBED 8" @ 16" o/c

PROFESSIONAL ENGINEER
ALBERTA
Feb 05/16
[redacted]

SK-5

ALBERTA FOUNDATION & CONCRETE LIFTING LTD.

BOX 173
BLACKIE,AB
T0L 0J0
Phone # (403)684-3724

# Estimate

| Date | Estimate # |
|---|---|
| 24/02/2016 | 119 |

| Name / Address |
|---|
| W. Vaile Eng.<br>W. Vaile |

| P.O. No. | Terms | Project |
|---|---|---|
| | Net 30 | |

| Description | Qty | Unit | Total |
|---|---|---|---|
| JOB: Blackie Community Hall. | | | T |
| fence site supply and install. | 1 | | 500.00T |
| Dig arround three sides of foundation wall and backfill and tamp. | 1 | | 3,500.00T |
| Repair 152 ft. wall cracks at $30.00 per ft. | 152 | | 4,560.00T |
| Materials concrete,rebar,hilti hit 200,tieback rods and forms. | 1 | | 36,700.00T |
| Labour to install forms, rebar,hilti hit and tieback rods and place concrete. | 1 | | 11,300.00T |
| Concrete pump | 1 | | 2,800.00T |
| Two coats foundation coating | 2 | | 2,400.00T |
| Drainage system with drywell. | 1 | | 3,200.00T |
| New grass and water grass. | 1 | | 4,000.00T |
| Install 240 ft of new melal flashing. | 240 | | 1,200.00T |
| Business Number: 125341479 | | | |

| | |
|---|---|
| Subtotal | $70,160.00 |
| GST | $3,532.00 |
| **Total** | $73,692.00 |

# Hazardous Building Materials Assessment

Blackie Community Hall
1205 Railway Avenue
Blackie, Alberta

Project: CT2200115.1000.0000

Prepared for:
**MD Foothills County**
High River, Alberta

September 2022

Distribution: MD Foothills County

# Hazardous Building Materials Assessment

## 1205 Railway Avenue

## Blackie, Alberta

**Project: CT2200115.1000.000**

**Prepared for:**
MD Foothills County
High River, AB

**Prepared by:**
Wood Environment & Infrastructure Solutions Canada Limited
5681 - 70 Street
Edmonton, Alberta T6B 3P6
Canada
T: 780-436-2152

**September 2022**

Wood Environment & Infrastructure Solutions Canada Limited
5681 - 70 Street
Edmonton, AB T6B 3P6
Canada
T: 780-436-2152

20 September 2022
Wood Project No.: CT220115.1000.0000

Foothills County
PO Box 5605
High River, Alberta T1V 1M7
Email: jeff.edgington@mdfoothills.com

**Attention:** **Mr. Jeff Edgington**

**Reference:** **Hazardous Building Materials Assessment**
**Blackie Community Hall**
**1205 Railway Avenue**
**Blackie, Alberta**

Wood Environment & Infrastructure Solutions Canada Limited (Wood) is submitting this Hazardous Building Materials Assessment ('HBMA') report for the above-referenced building.

Should you have any questions regarding our findings, please call the undersigned at (780) 719-4872 or (780) 989-4539.

Yours truly,

**Wood Environment & Infrastructure Solutions Canada Limited**

[redacted]
Environmental Site Assessor

[redacted]
Andrew Grant, P.Eng., EP, CRSP, CNRPP
Associate Engineer, Senior Hazardous Materials Specialist

# Executive Summary

Wood Environment & Infrastructure Solutions Canada Limited (Wood) was retained by the MD of Foothills County to conduct a Hazardous Building Materials Assessment ('HBMA') of a building located at 1205 Railway Avenue in Blackie, Alberta (the 'Site'). The purpose of the survey was to identify hazardous building materials present within the building that may require special handling or removal prior to renovation and/or demolition activities.

The hazardous building materials assessed as part of this survey included potential asbestos-containing materials (ACMs), lead-containing paint (LCP), other lead-containing materials, mercury containing equipment, ozone depleting substances (ODSs), polychlorinated biphenyls (PCBs) in light ballasts, radionuclide-containing smoke detectors and suspect visible mould growth (SVG). Wood conducted the HBMA of the Site building on 04 August 2022. The field survey was limited to hazardous materials included in our scope of work and to those hazardous building materials found in accessible building areas on the subject property. Based on the findings of the assessment, Wood identified hazardous materials within the Site building that should be removed prior to renovation or demolition activities.

These hazardous materials are summarized as follows.

- Asbestos-containing materials as follows:
  - resilient floor tiles in basement; and
  - gypsum board joint compound in the basement furnace room and front main hallway.
- Lead-containing materials as follows:
  - the front building exterior blue door trim;
  - Main entrance brown interior paint trim; and
  - Main bar wall interior beige paint.
- Potential ozone depleting substances as follows:
  - Fire suppression equipment;
  - two refrigerator units; and
  - one freezer unit.
- Potential mercury-containing thermostat inside the building.
- Potential mercury-containing fluorescent light tubes inside the building.
- Potential PCB-containing fluorescent lamp ballasts inside the building.

Prior to any renovation or demolition work it is recommended that a Hazardous Materials Abatement Contractor conduct a comprehensive review of the site to quantify and obtain all measurements of all building materials detailed in this report for cost estimating purposes. ACMs may be present in forms that were not observed or sampled during the Site inspection including, but not limited to, roofing felts, inaccessible caulking materials, fire rated doors, thermal insulating materials such as gaskets associated with mechanical equipment, wiring and electrical components, packing associated with cast iron pipe joints, or in areas that were not accessible at the time of the survey.

It is recommended that all work be conducted in accordance with a Site-specific renovation plan which should address such items as demolition methods, worker training and protection, decontamination procedures, dust suppression, and transportation and disposal of waste. If requested, Wood could assist in preparing such documents.

The proceeding information provided a general summary. Refer to the following report for full assessment details and recommendations.

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## Glossary of Commonly Used Abbreviations

| | | | |
|---|---|---|---|
| ACM | Asbestos containing material | LF | Linear feet |
| CFC | Chlorofluorocarbon | mg/kg | Milligrams per kilogram |
| CMU | Concrete masonry unit | NTP | National Toxicology Program |
| EPA | Environmental Protection Agency | ODS | Ozone depleting substance |
| HBMA | Hazardous Building Materials Assessment | OHS | Occupational Health and Safety |
| HID | High intensity discharge | OSHA | Occupational Safety and Health Administration |
| IARC | International Agency for Research on Cancer | PCB | Polychlorinated biphenyl |
| LCP | Lead containing paint | SDS | Safety Data Sheet |
| LED | Light emitting diode | SVG | Suspect visible growth |

# 1.0 Introduction

## 1.1 Project Background

Wood Environment & Infrastructure Solutions Canada Limited (Wood) was retained by the MD of Foothills County to conduct a Hazardous Building Materials Assessment (HBMA) of a building located at 1205 Railway Avenue within Blackie, Alberta (the 'Site'). The purpose of the survey was to identify hazardous building materials present within the building that may require special handling or removal prior to renovation and/or demolition activities.

## 1.2 Objectives

The purpose of the survey was to identify hazardous building materials; namely potential asbestos-containing materials (ACMs), lead-containing paint (LCP), other lead containing building materials, mercury-containing equipment, ozone depleting substances (ODSs), polychlorinated biphenyls (PCBs) in light ballasts, radionuclide-containing smoke detectors, and suspect visible mould growth (SVG) that may be present within the Site building which require special handling prior to renovation/demolition activities.

## 1.3 Methodology

The work performed as part of this investigation included the following components.

- A HBMA was completed, including field and laboratory testing to evaluate the presence/absence of materials of concern.
- This report was prepared summarizing the findings, relevant standards and control alternatives, where applicable. The report includes locations of materials that require special handling prior to renovation or demolition activities.

Wood conducted the HBMA of the Site building on 04 August 2022. A detailed summary of Wood's sampling methodology and definitions associated with the materials of concern are provided in Appendix A. Sampling Summary Tables are provided in Appendix B. There was no substantial modification to the project scope of work.

# 2.0 Site Description

The Site building is located at 1205 Railway Avenue, in Blackie, Alberta on a property legally identified as Plan 690AG, Block 3, Lots 6-8. At the time of the Site visit on 04 August 2022, the Site was developed with one building having a footprint of approximately 400 square metres ($m^2$). This building is a bi-level structure of concrete and wood frame construction with a concrete basement and is estimated to have been constructed prior to 1980. The building façade is constructed with concrete brick and parging with metal clad exteriors walls extending to a rounded roof. The remaining exterior walls are constructed with concrete masonry units ('CMUs'). The flooring on the basement level consists of resilient floor tiles. Portions of the basement level have exposed concrete floors. The flooring on the main level is hardwood. The walls are a mix of gypsum board, CMUs and brick. Heating for the building is provided by furnaces fuelled with natural gas. The building is connected to the municipal water supply and sewerage system. Power is provided via pole-mounted transformers located along the back lane south of the Site. The general construction details of the Site building observed at the time of the assessment are as follows:

| | |
|---|---|
| Exterior Walls: | Metal cladding, pressed wood panel and CMU. |
| Roof: | Metal Cladding. |
| Interior Walls: | Painted gypsum board, ceramic tiles, wood panelling and CMU (outer walls) in basement. Concrete and painted gypsum board in basement. |
| Floor: | Resilient floor tile and exposed concrete (basement). Hardwood and OSB panel (main floor). |
| Interior Ceilings: | Ceiling tile and painted gypsum board on each floor. |
| Lighting: | Fluorescent and incandescent lamps. |
| Mechanical: | Heating provided by natural gas furnaces. |

At the time of the Site visit, the Site building was in good condition. Site photographs (Photographs 1 to 12) are provided in Appendix C.

# 3.0 Survey Results

## 3.1 Asbestos-Containing Materials

Wood collected 22 samples of suspect ACMs which were submitted to the EMSL Canada laboratory (EMSL) in Mississauga, Ontario for confirmatory analysis. The number of samples collected for ACM was based on the size of the homogenous materials encountered on the Site as suggested by the Alberta *Asbestos Abatement Manual*[1] (subsection 7.1.1, Table 3 "Bulk Material Samples"). Samples were analyzed in accordance with U.S. Environmental Protection Agency (EPA) Analytical Method 600/R-93/116 for asbestos using polarized light microscopy. EMSL identified additional layers in 2 of the samples resulting in a total of 24 distinct materials being analyzed. Results of the laboratory analyses are summarized in Table 1 (Appendix B) and the laboratory report is included in Appendix E. The presence of asbestos was confirmed in 3 of the samples collected by Wood. The confirmed ACMs, as identified by Wood are summarized below.

**Summary of Confirmed ACM**

| Material Description | Samples Analyzed | Samples confirmed as ACM | Asbestos Type and Concentration Range (%) |
|---|---|---|---|
| Resilient floor tiles | 2 | 2 | Chrysotile (1 %) |
| Gypsum board joint compound | 1 | 1 | Chrysotile (2 %) |

The results of the Wood sampling activities are summarized in Table 1 of Appendix B. Building plans showing the locations of the samples collected for asbestos analysis are provided in Appendix D. The laboratory analytical reports are included in Appendix E. Brief descriptions and locations of the confirmed ACMs are summarized in the following text. The conditions of the ACMs were assessed utilizing an Exposure Assessment Algorithm as outlined in the Alberta *Asbestos Abatement Manual*. This includes an assessment of the friability, condition and accessibility of these materials as well as the level of activity in the areas where these materials are present.

**Resilient Floor Tile (RFT)**

The flooring observed inside the basement of the building consisted primarily of RFT. All samples of these floor tiles were confirmed to contain 1 % chrysotile asbestos. The RFT throughout the basement in the building appeared to be in good condition, having a low potential for fibre release.

**Gypsum Board Joint Compound**

One sample of gypsum board joint compound was confirmed to contain 2% chrysotile asbestos. This sample was collected from the basement furnace room. The gypsum board throughout the basement generally appeared to be in good condition. Gypsum board located in the front main entrance hallway was observed during the assessment and can be assumed to contain asbestos. Gypsum board in the main hallway appeared to be in good condition. Accessibility to this material is considered moderate and is likely to be located in areas of moderate activity when the building is occupied.

[1] Government of Alberta. Alberta Asbestos Abatement Manual. Current edition.

ACMs may be present in forms that were not observed or sampled during the Site inspection including, but not limited to, inaccessible caulking materials, thermal insulating materials such as gaskets associated with mechanical equipment, wiring and electrical components, packing associated with cast iron pipe fittings, or in areas that were not accessible at the time of the survey. For the purpose of demolition, or any other alteration or disturbance, all suspect ACMs, unless confirmed through sampling and analysis, should be considered to contain asbestos and handled in accordance with a written work plan that references current Provincial guidelines as presented in the Alberta Asbestos Abatement Manual (current edition).

## 3.2 Lead and Lead-Containing Paint

### 3.2.1 Lead-Containing Paint

Paint samples were collected from various areas of the building to cover the range of paint colours observed on the walls and trim. Eleven samples were collected to cover the range of painted surfaces observed inside the building. The collected samples were submitted to EMSL Canada Inc. in Mississauga, Ontario for analysis of total lead content. Results of the laboratory analyses are summarized in Table 2 (Appendix B) and the laboratory report is included in Appendix E.

Three of the eleven collected paint samples were confirmed to have a lead content of greater than 90 milligrams per kilogram (mg/kg). Two samples (sample numbers PB-03 and PB-04) had an insufficient amount for testing. The lead content in nine of the paint samples was below the laboratory method detection limit (MDL). The MDLs varied depending upon the sample quantities and generally ranged from 80 to 380 milligrams per kilogram (mg/kg). Where the lead was quantifiable, the concentrations in the analyzed samples ranged from 81 to 1,600 mg/kg.

A summary of the paints confirmed to have a lead content of more than 90 mg/kg is provided in the table below.

**Summary of Lead Containing Paint**

| Paint Description | Samples Analyzed | Lead Concentration Range (mg/kg) |
|---|---|---|
| Blue Paint - Exterior Main Door | 1 | 1600 |
| Brown paint - Main entrance wall trim | 1 | <150 |
| Beige paint - Main Bar Wall | 1 | <380 |

Based on the age of the building (constructed prior to 1980), there is a potential that all surfaces have at least two coats of paint. Therefore, there is a potential that recent coatings have covered previous surface coatings that had a higher lead content. As a result, all painted surfaces inside the building should be considered to have the potential to have up to 5,000 mg/kg of lead. The remaining painted surfaces on the building exterior and interior were generally in good condition with no substantial flaking and peeling noted.

The surface coatings were not submitted for additional Toxicity Characteristic Leaching Procedure ('TCLP') testing.

### 3.2.2 Other Lead-Containing Materials

Emergency lighting will typically contain a removable lead-acid battery. Two emergency lights were observed on the Site. Pipes, pipe solder, drain traps and pipe joints, roof drains and roof vent sheeting, where present, may contain lead based on the age of construction. No other potential lead-containing materials were observed.

## 3.3 Mercury-Containing Devices

Wood observed one potential mercury-containing thermostat on the main floor. Thermostats typically contain one or two mercury switches in glass ampoules, each containing approximately 3 grams of elemental mercury.

Based on current literature and the apparent age of the building, the fluorescent lamps observed throughout the building are suspected of containing between 3 to 12 mg of mercury (see Appendix A). Approximately 39 fluorescent light fixtures having two light tubes were observed in the building. Other potential mercury containing equipment present at the Site includes switches and thermostats associated with the building mechanical systems, although none of these were observed.

## 3.4 Ozone Depleting Substances

Two refrigerator units were observed on the Site, located in the main floor bar, and basement kitchen. Both units contained Freon R134 (1,1,1,2-tetrafluoroethane). One freezer unit was observed in the main floor bar area. This unit contains cyclopentane (C-pentane). A fire suppression system (Range Guard, Model RG-2-5G) was observed in the basement kitchen.

All equipment confirmed or suspected of containing ODSs should be inspected by a licensed technician prior to removal or disposal. If found to contain ODS, any units taken out of service must be decommissioned in accordance with federal and provincial regulations.

## 3.5 Polychlorinated Biphenyl-Containing Light Fixtures

Based on the date of construction (prior to 1980), there is a potential that PCB-containing fluorescent lamp ballasts are present within the building where any original fixtures remain. No other potential PCB-containing electrical equipment was observed on the Site.

## 3.6 Suspect Visible Growth and Water Damage

No suspect visible growth (SVG) was observed on the Site. SVG may occur within enclosed spaces and may not have been evident to Wood at the time of the Site visit.

## 3.7 Radioactive Building Components

No smoke Ionization smoke detectors use a small radioactive source in detecting smoke particles. The radionuclide used is an oxide of Americium-241, which is bonded to a metallic foil and sealed in an ionization chamber. Americium-241 emits alpha particles and low-energy gamma rays. The smoke detector alarm is activated when the flow of alpha particles is interrupted by smoke particles. When smoke detectors are used in accordance with manufacturer requirements and are not opened, they do not pose a radiation human health risk. The Canadian Nuclear Safety Commission (CNSC, formerly Atomic Energy Control Board) achieves regulatory control of nuclear materials and nuclear facilities through a comprehensive licensing system, which is administered through the cooperation of federal and provincial government departments such as health, environment, transportation and labour.

No smoke detectors were observed during the building assessment.

# 4.0 Recommendations for Demolition / Renovation

Based on the findings of the assessment, Wood identified hazardous materials within the Site building that should be removed prior to renovation or demolition activities. These hazardous materials are summarized as follows.

- Asbestos-containing materials as follows:
  - resilient floor tiles in basement; and
  - gypsum board joint compound in the basement furnace room and front main hallway.
- Lead-containing materials as follows:
  - the front building exterior blue door trim;
  - Main entrance brown interior paint trim; and
  - Main bar wall interior beige paint.
- Potential ozone depleting substances as follows:
  - Fire suppression equipment;
  - two refrigerator units; and
  - one freezer unit.
- Potential mercury-containing thermostat inside the building.
- Potential mercury-containing fluorescent light tubes inside the building.
- Potential PCB-containing fluorescent lamp ballasts inside the building.

## 4.1 Asbestos-Containing Materials

The resilient floor tiles in the building were confirmed to contain asbestos and are present throughout the basement in the building. The gypsum board joint compound confirmed to contain asbestos appeared to be confined to the basement of the building within the furnace room. Gypsum board is also located in the main entrance and may contain asbestos.

The ACMs identified on the Site appeared to be in good condition. Therefore, there is no recommendation to remove the ACMS from the building. However, in the event of future renovations or demolition, ACMS identified by this investigation should be removed and disposed of by qualified trades prior to undertaking building renovation or demolition in accordance with Section 34 of the Alberta Occupational Health and Safety (OHS) Code, asbestos-containing building materials. The Alberta Asbestos Abatement Manual (current edition) defines an ACM as a product or building material containing asbestos in any quantity or percentage. Asbestos abatement procedures must follow applicable legislated standards or requirements and should be designed and supervised by a qualified professional. In the event that other suspect ACMs are encountered during demolition, confirmatory testing of the materials should be completed in order to determine appropriate handling and disposal requirements.

A brief summary of the confirmed ACMs is provided below. The conditions of the ACMs were assessed utilizing an Exposure Assessment Algorithm as outlined in the Alberta *Asbestos Abatement Manual*. This includes an assessment of the friability, condition and accessibility of these materials as well as the level of activity in the areas where these materials are present.

| Confirmed ACM | Asbestos Content | Friable / Nonfriable | Condition | Accessibility | Activity in Area |
|---|---|---|---|---|---|
| Resilient floor tiles | 1 % Chrysotile | Nonfriable | Good | High | Moderate-High |
| Gypsum board joint compound (basement) | 2 % Chrysotile | Nonfriable | Good | High | Moderate |

## 4.2 Lead and Lead-Containing Paint

The lead content in the 3 of the 11 paint samples collected from the building were confirmed to be greater than 90 mg/kg. The lead contents in the remaining paint samples were below the laboratory MDLs. Two samples had an insufficient amount for testing (sample numbers PB-03 and PB-04). The lead content in nine of the paint samples was below the laboratory method detection limit (MDL). The MDLs varied depending upon the sample quantities and generally ranged from 80 to 380 milligrams per kilogram (mg/kg). Where the lead was quantifiable, the concentrations in the analyzed samples ranged from 81 to 1,600 mg/kg. A sample of the blue paint from the exterior door frame had a lead content of 1,600 mg/kg. The next highest lead content was<380 mg/kg in a sample of the beige paint used on the main floor bar room walls, and <150 mg/kg in a sample of brown paint on the main floor entrance wall trim.

Samples of surface coatings were not submitted for Toxicity Characteristic Leaching Procedure ('TCLP') testing. The painted surfaces on the building exterior and interior were generally in good condition with no substantial flaking and peeling noted. Lead containing paints within the buildings can be managed by applying a coat(s) of non-lead paint. Proper personnel protective equipment ('PPE') including respirators and Tyvek suits should be worn by personnel sandblasting or scraping any painted surfaces within the buildings to reduce the potential for exposure to airborne lead. The scraped and/or sandblasted residuals should be submitted for TCLP testing to determine appropriate disposal methods.

## 4.3 Mercury-Containing Devices

One thermostat was observed in the building on the main floor. The presence of mercury in fluorescent lamps and equipment poses minimal risk to occupants or workers provided the equipment is handled properly and the mercury is not allowed to escape. Prior to demolition or renovation activities which may disturb these materials, all equipment confirmed or suspected to contain mercury must be removed. Where possible, the fluorescent lamps should be recycled and the mercury collected.

## 4.4 Ozone Depleting Substances

All equipment confirmed or suspected of containing ODSs should be inspected by a licensed technician prior to removal or disposal in accordance with Alberta Regulation 181/2000. Any units containing ODSs and taken out of service must be decommissioned in accordance with federal and provincial regulations.

## 4.5 PCB-Containing Light Fixtures

Based on the date of construction (prior to 1980), PCB-containing fluorescent lamp ballasts may be present where any original fixtures remain. In the event that any PCB-containing ballasts are identified, they must be stored and transported in accordance with applicable Provincial and Federal hazardous waste and transportation of dangerous goods legislation. PCB-containing fluorescent lamp ballasts can be identified using the Environment Canada Publication, Environmental Protection Series - Identification of Lamp Ballasts Containing PCBs[2].

## 4.6 Suspect Visible Growth and Water Damage

During any future restoration activities, the contractor should identify if there is any evidence of water incursion issues or SVG. If encountered, the areas may require assessment and recommendations provided.

## 4.7 Radioactive Building Components

The presence of smoke/heat detectors that contain radioactive sources poses minimal risk to occupants or workers provided the equipment is handled properly. Any units taken out of service should be disposed of in accordance with applicable guidelines and regulations.

It is recommended that all work having the potential to disturb hazardous building materials be conducted in accordance with a Site-specific renovation or demolition plan which should address such items as renovation/demolition methods, worker training and protection, decontamination procedures, dust suppression, and transportation and disposal of waste. If requested, Wood could assist in preparing such documents.

[2] Environment Canada, August 1991. Environmental Protection series - Identification of Lamp Ballasts Containing PCBs, Report EPS 2/CC2

# 5.0 Survey Limitations

Within the limitations of the agreed-upon scope of work, the field observations, measurements and analysis are considered sufficient to provide an overview of existing potential concerns or form a general inventory of hazardous materials in the subject building. It should be noted that the data presented herein was collected at specific sampling locations, and depending on the homogeneity of the samples, the data may vary between these locations. Some inherent limitations exist as to the thoroughness of this assessment due to the nature of building construction.

Reasonable efforts were made to identify all substances designated in this report; however, Wood may not have been able to identify and assess all suspect hazardous materials, as certain building materials may exist that were not visible or accessible at the time of the survey. Inaccessible locations include those that require demolition to gain entry, which present an unacceptable health or safety risk to the surveyors. Areas above a suspended tile ceiling, crawl spaces, pipe chases and areas behind an access hatch were considered accessible. Materials hidden by walls, finishes and equipment at the time of the survey were considered inaccessible.

The field observations, measurements and analysis are considered sufficient to form a general inventory of hazardous materials in the surveyed areas. It is possible that materials may exist which could not be reasonably identified within the scope of the assessment, or which were not apparent or accessible during the Site visit. Within the limitations of the agreed-upon scope of work, the survey included building materials found within or forming part of the building envelope and building mechanical systems and equipment. The inspection did not include the identification of suspected hazardous materials located in the interior of electrical, mechanical (i.e., interior surfaces of ventilation ducting, boilers, etc.), or inside wall cavities (e.g., pipe chases), inaccessible ceiling plenums, sub floors, underlying materials (e.g., underlying flooring and paint layers), and where sampling could have affected the integrity of the system (e.g., water-proof roof membrane and caulking). Wood is not responsible for the repairs of building materials that were sampled during the survey.

# 6.0 Closure

This report was prepared for the exclusive use of the MD of Foothills County in accordance with the proposed work scope prepared for this site (22PROPTRNP), verbal and written requests from Mr. Jeff Edgington and generally accepted assessment practices. This report is also subject to the Limitations in Appendix F.

Respectfully submitted,

**Wood Environment & Infrastructure Solutions Canada Limited**

[redacted]

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**Reviewed by:**

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# Appendix A

# Survey Definitions and Methodology

## SURVEY DEFINITIONS, METHODOLOGY AND REGULATORY REQUIREMENTS

### 1.0 FIELD METHODOLOGY

The methodology generally consisted of a targeted survey of all accessible areas within the buildings included in this scope. The surveyor identified potential asbestos-containing materials by appearance, age, and knowledge of current and historical uses of the Site and subject materials. Accessible locations are those for which entry is not prohibited by security or other institutional restrictions, that could be inspected without the need for destructive testing (e.g. penetration of a surface such as a wall, ceiling chase or shaft to gain access), and which did present an unacceptable health or safety risk to the surveyor. The area above a suspended tile ceiling, crawl spaces, pipe chases / service tunnels or behind an access hatch are generally considered to not be accessible. Materials hidden by walls, finishes and equipment at the time of the survey are considered inaccessible. Reasonable effort was used to identify potential hazardous materials in areas not readily accessible, such as confined areas enclosed by gypsum board, plaster, or panelling, etc., or where minor demolition was required to gain entry.

Intrusive sampling was conducted in the form of collecting samples of building materials, removing baseboards, lifting areas of carpet or flooring and cutting or breaking small holes in wallboard or plaster. Wood only performed such activities in areas where operation of the facility and the health and safety of occupants was not affected. Effort was made to minimize or conceal damage. Wood was not responsible for the repair of any other areas sampled as part of this evaluation with the exception of temporary repairs to leave the area in safe workplace condition.

While in the field, the surveyor completed detailed field notes for the building; a description of the rooms and a detailed description of any suspected hazardous materials observed within the rooms. Details of condition, visibility / accessibility, a quantifiable estimate of any potential ACMs identified, and any action that may be required to reduce asbestos fibre exposure hazards based on these observations were recorded where applicable as follows:

Condition:

Good: no visible damage or exposed material
Fair: repairable damage with minor amounts of exposed material
Poor: extensive damage with missing or exposed material

### 2.0 ASBESTOS-CONTAINING MATERIALS

The Alberta Asbestos Abatement Manual (current edition) defines an ACM as a product or building material containing asbestos in any quantity or percentage. A Restricted Area[3] is likely to occur when ACM is disturbed, either due to the condition of the material or the work procedures that will be used (e.g., removal of friable stipple material, dry removal of wall and ceiling plaster or drywall where the materials contain low levels of asbestos).

**Friable material** refers to an ACM that can be readily crumbled using hand pressure, separating asbestos fibres from the binding materials with which they are associated. Typical friable materials include acoustical or decorative spray applications, fireproofing, refractory and thermal insulation.

[3] Restricted Area means an area of a work site where there is a reasonable chance that the airborne concentration of asbestos exceeds or may exceed the occupational exposure limits for one or more of the substances.

**Non-friable material** refers to an ACM that is associated with a binding agent (such as tar or cement) that prevents the ready release of airborne fibres. Typical non-friable materials include floor tiles, fire blankets, pre-formed manufactured cementitious insulation and wallboards, pipes, and siding. These materials are generally considered to pose a low hazard provided they remain intact and are not cut or shaped with power tools that are not equipped with a high efficiency particulate aerosol (HEPA) filtered dust collection system.

**Special considerations:** Some ACMs, such as plaster, joint/filler compound, and compressed fibre ceiling tiles act as non-friable materials when in-place and in good condition as the associated binding agent prevents the release of airborne fibres. Therefore, these materials can be handled as a non-friable if in good condition and undisturbed. However, if the binding agent is relatively weak, and if disturbed or damage in any way, the material may act as a friable material with an increased risk of asbestos fibre release. These materials must be handled as friable materials in the event of any disturbance or damage.

Vermiculite insulation that contains asbestos fibres is generally handled as a friable material due to the ease in which the asbestos-fibres may be released to air. Although asbestos-concentrations in bulk samples of vermiculite are generally reported as <1%, relatively high concentrations of airborne asbestos fibres may result from the disturbance of asbestos-containing vermiculite insulation.

Wood collected samples of suspected ACMs and submitted them to the EMSL Canada Inc. (EMSL) laboratory in Calgary, Alberta for analysis. EMSL laboratory is a National Voluntary Laboratory Accreditation Program (NVLAP) certified laboratory. The samples were analyzed using Polarized Light Microscopy (PLM) methods (EPA 600/R-93/116). A copy of the NVLAP certification for EMSL is provided in Appendix E.

## 3.0 LEAD-CONTAINING PAINT

In building construction, lead was frequently used for roofs, cornices, tank linings, electrical conduits, and as a main component of soft solder alloy used to seal pipe fittings. Lead was also used extensively for pigmentation, sealing, and as a drying agent in oil-based paints up until the early 1950's. Exterior paints typically contained up to 60% lead by weight.

The United States Department of Housing and Urban Development (the U.S. HUD) guideline of 1 milligram per square centimetre ($mg/cm^2$), 0.5 percent lead by weight, or 5,000 parts per million (ppm) lead is used in the United States as a guideline for determining whether the use of safety precautions would be required during operations that create lead dust or fumes.

In 1976, the Canadian Federal Government introduced the Liquid Coating Materials Regulations under the Federal Hazardous Products Act, restricting the maximum total lead content of paints and other liquid coating materials used in or around premises attended by children or pregnant women to 0.5% by weight (5,000 mg/kg). In January 1991, Health Canada negotiated a voluntary reduction of lead content in all Canadian produced consumer paint to a maximum of 0.06%. In November 2010, under the Canadian Hazardous Products Act, the Federal Government revised the Surface Coating Materials Regulations SOR/2005-109, which limits the amount of lead permissible in paints and other surface coating materials to 0.009% lead by dry weight (90 µg/g). This reduction does not generally apply to surface coating applied to buildings or other structures used for agricultural or industrial purposes or as an anti-weathering or anti-corrosive coating.

For the purposes of this survey where occupational exposures are considered during demolition or renovation, lead-containing paint (LCP) is defined as a surface coating containing a lead concentration greater than 0.009% or 90 mg/kg (90 µg/g).

The survey included a description of typical building materials suspected to contain lead. Details of location, description, and condition were recorded. The survey included the collection of select bulk samples of readily accessible building materials suspected to contain a surface coating defined as a LCP. Paint chip samples were analyzed by EMSL, which is certified and accredited by the Canadian Association for Laboratory Accreditation (CALA), in accordance with U.S. EPA SW 846 3050 6010C for lead. A copy of the CALA certification for lead analysis held by EMSL is provided in Appendix E.

## 4.0 MERCURY

Based on information provided by the U.S. Environmental Protection Agency (EPA), small commercial switches and thermostats may contain 2 to 18 milligrams (mg) of mercury with industrial switches and equipment containing 5 kilograms (kg) or more. According to published literature, older mercury containing lamps, the majority of which are 1.2 m (four foot) T-12 fluorescent lamps, can contain up to 80 mg of mercury per lamp. Newer T-12, T-8 and T-5 style fluorescent lamps manufactured since 2000 have in the order of 3 to 12 mg of mercury per lamp. Other types of lamps, such as metal halide and high pressure sodium, can also contain mercury in the order of 20 to 250 mg/lamp. The Canadian Council of Ministers of the Environment (CCME) *"Canada-Wide Standard for Mercury Containing Lamps"* (2001) is largely geared towards reducing the amount of mercury in lamps at the manufacturing stage; however they do recommend that the release of mercury can be minimized through the proper recycling and disposal of mercury containing lamps.

## 5.0 POLYCHLORINATED BIPHENYL (PCB)

The possible presence of PCBs in the fluorescent or other lamp ballasts was determined based on a visual assessment and comparison of available ballast label information to the criteria outlined in the 1991 Environment Canada document entitled "*Identification of Lamp Ballasts Containing PCBs*."

## 6.0 OZONE DEPLETING SUBSTANCES

As part of the survey, Wood checked for equipment or materials which may contain ODS such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and halons. Typically, these ODSs may be used as refrigerants, propellants, in the manufacture of items such as packaging, insulation, solvents and halon-based fire extinguishing agents. Under the Alberta Ozone Depleting Substances Regulation (Alberta Regulation 15/92) which came into effect in July 1992, it is required that all ODS be recovered and recycled, mandatory training for service personnel, mandatory record keeping and labelling and prohibitions for the sale and use of ODS. In Canada, the production or import of CFCs were banned in January 1996. CFCs were developed in the 1930s for use as a substitute refrigerant to ammonia. While less damaging to the ozone layer, HCFCs are scheduled to be phased out in Canada between the years 2010 and 2020.

## 7.0 REGULATORY REQUIREMENTS

The Alberta Occupational Health and Safety (OHS) Act establish standards for the protection and promotion of worker health and safety in occupations covered by the Act. The Act gives the government the authority to make regulations regarding health and safety in the workplace, outlines employer and employee responsibilities and establishes penalties should the Act and attendant regulations be violated.

The *OHS Regulation* deals primarily with administrative and policy issues related to occupational health and safety.

The *OHS Code* contains detailed technical requirements that support the *OHS Act* and *OHS Regulation*. Combined, the *OHS Regulation* and *OHS Code* replaced 11 of Alberta's previously existing occupational health and safety regulations:

(1) Chemical Hazards Regulation AR 393/88
(2) Designated Work Sites AR 306/77
(3) Designated Work Sites AR 91/78
(4) Designation of Joint Work Site Health and Safety Committee AR 218/77
(5) Explosives Safety Regulations AR 272/76
(6) First Aid Regulation AR 48/2000
(7) General Safety Regulation AR 448/83
(8) Joint Work Site Health and Safety Committee Regulation AR 197/77
(9) Mines Safety Regulation AR 292/95
(10) Noise Regulation AR 314/81
(11) Ventilation Regulation AR 326/84

Parts and sections relevant to this study are summarized as follows:

**Part 1 Definitions and General Application**
**Section 1** lists in one location the definitions of all terms defined in the *OHS Code*.

**Section 3** lists all standards referenced in the *OHS Code*.

**Part 2 Hazard Assessment, Elimination and Control**
**Section 7** requires employers to assess a work site and identify existing or potential hazards before work begins. Employers must prepare a report that provides the results of the assessment and specifies the methods that will be used to control or eliminate the hazards.

**Section 8** requires employers, if reasonably practicable, to involve workers in assessing, controlling and eliminating potential hazards.

**Section 9** requires employers to eliminate hazards whenever it is reasonably practicable to do so. If elimination is not reasonably practicable, hazards must be controlled:

- first by using engineering controls;
- then administrative controls; and
- finally, as a last option, by using personal protective equipment.

**Section 11** requires an employer to prepare an occupational health and safety plan if ordered to do so by a Director. A Director is appointed by the Minister under Section 5 of the *OHS Act*.

**Part 3 Specifications and Certifications**
Part 3 establishes the importance of manufacturer's specifications and of specifications certified by a professional engineer.

**Part 4 Chemical Hazards, Biological Hazards and Harmful Substances.**

With the exception of 17 substances, Alberta's Occupational Exposure Limits (OELs) are based on the 1999 Threshold Limits Values (TLVs) developed by the American Conference of Government Industrial Hygienists (ACGIH). OELs for chemical substances are listed in Schedule 1, Table 2 of the code. Following is a summary of OELs relevant to this study.

**Occupational Exposure Limits**

| Chemical Hazard | OEL 8 hour |
|---|---|
| Asbestos (all types) | 0.1 f/cc |
| Glass Fibres | 5 $mg/m^3$ / 1 f/cc |
| Lead | 0.05 $mg/m^3$ |
| Mercury (Inorganic compounds including metallic mercury) | 0.025 $mg/m^3$ |
| Polychlorinated Biphenyls (PCBs) | 1 $mg/m^3$ |
| Silica - Crystalline | 0.05 to o.1 $mg/m^3$ |

OEL - Occupational Exposure Limit
$mg/m^3$ - milligrams per cubic metre
f/cc - fibres per cubic centimetre

**Section 17** requires employers to ensure that where workers are exposed to mixed substances and where those substances have similar toxicological effect that the "additive effect" of exposure to those substances is considered. "Additive effects" of mixed substances are determined through the following formula:

$D=C_1/T_1+ C_2/T_2 +... C_n/T_n$ Where: C=Airborne Concentration and T=OEL

**Section 18** requires employers to ensure that OELs are adjusted for work shifts longer than eight hours. The Brief and Scala model is used to reduce the OEL proportionately for both increased exposure time and reduced recovery (non-exposure) time. The "Adjusted Exposure Limit is determined using the following formula:

AEL= OEL x 8/h x (24-h/16) Where: h=hours worked per day

**Sections 21 and 22** requires employers to assess worker exposure to harmful substances and sets monitoring requirements.

**Section 26** requires employers to prepare a code of practice governing the storage, handling, use and disposal of any substance present at a work site that is listed in Table 1 of Schedule 1. (Section 8 of the *OHS Regulation* requires that procedures specified by a code of practice be in writing and available to workers).

**Sections 28 through 43** outline the requirements regarding asbestos, silica, coal dust and lead. Restricted areas are defined in the Code and requirements for these areas are detailed.

**Sections 32 to 35** contain provisions restricting the use of asbestos in buildings and requiring abatement in buildings to be demolished or renovated.

**Section 37** stipulates asbestos worker training requirements.

**Section 41** requires employers to develop a lead exposure control plan for work sites where exposure to lead could result in an elevated body burden.

**Section 42** details the requirement for air monitoring and surface testing for lead.

**Section 43** details medical monitoring requirements for lead.

# Appendix B

# Sample Summary Tables

| TABLE 1: SAMPLING INFORMATION SUMMARY - BULK ASBESTOS | | | | | | |
|---|---|---|---|---|---|---|
| Wood Sample No. | Lab ID No. | Photograph No. | Sample Location Description | Sample Description | Laboratory Results | |
| | | | | | % Asbestos Fibres | Asbestos Type |
| AB-01 | 552212336-0001 | 1 | Parging - Main Entrance North | Grey non-fibrous material | No asbestos fibres detected | |
| AB-02 | 552212336-0002 | --- | Parging - Southeast corner | Grey non-fibrous material | No asbestos fibres detected | |
| AB-03-Floor Tile | 552212336-0003 | 5 | Resilient Floor Tile - Women's Washroom | Beige, non-fibrous material | 1% | Chrysotile |
| AB-03-Mastic | 552212336-0003A | 5 | Resilient Floor Tile (Mastic) - Women's Washroom | Black, non-fibrous material | No asbestos fibres detected | |
| AB-04 | 552212336-0004 | 5 | Mortar - Ceramic tiles Women's washroom | White grout, non-fibrous material | No asbestos fibres detected | |
| AB-05 | 552212336-0005 | --- | Ceiling Texture - Women's washroom | White, firm fibrous material | No asbestos fibres detected | |
| AB-06 | 552212336-0006 | --- | Ceiling Texture - Men's washroom | White, firm fibrous material | No asbestos fibres detected | |
| AB-07 | 552212336-0007 | 6 | Gypsum board joint compound - Furnace Room | Beige plaster, non-fibrous material | 2% | Chrysotile |
| AB-08 | 552212336-0008 | --- | Ceiling Texture - Basement kitchen | White/yellow, fibrous material | No asbestos fibres detected | |
| AB-09-Floor Tile | 552212336-0009 | 4 | Resilient Floor Tiles - Basement Hall | Green, non-fibrous material | 1% | Chrysotile |
| AB-09 Mastic | 552212336-0009A | --- | Resilient Floor Tiles - mastic - Basement Hall | Black, non-fibrous material | No asbestos fibres detected | |
| AB-10 | 552212336-0010 | 4 | Ceiling Texture - Basement Hall | White, fibrous material | No asbestos fibres detected | |
| AB-11 | 552212336-0011 | --- | Caulking - Base of pole (central) Basement Hall | White, rubbery material | No asbestos fibres detected | |
| AB-12 | 552212336-0012 | --- | Caulking - Base of pole Basement Bar/Storage room | White, rubbery material | No asbestos fibres detected | |
| AB-13 | 552212336-0013 | --- | Gypsum board joint compound - North side of Main Stairwell | White plaster, non-fibrous material | No asbestos fibres detected | |
| AB-14 | 552212336-0014 | --- | Ceiling texture - Main Stairwell | White, fibrous material | No asbestos fibres detected | |
| AB-15 | 552212336-0015 | --- | Ceiling texture - Main Bar | White, fibrous material material | No asbestos fibres detected | |
| AB-16 | 552212336-0016 | 11 | Ceiling Tile - Attic | Brown/white, fibrous material | No asbestos fibres detected | |
| AB-17 | 552212336-0017 | 11 | Insulation - Attic | Brown/grey fibrous material | No asbestos fibres detected | |
| AB-18 | 552212336-0018 | 8 | Ceiling tile (fissure pattern) - North side Main Hall | Grey/white, fibrous material | No asbestos fibres detected | |
| AB-19 | 552212336-0019 | 8 | Ceiling Tile (Smooth pattern) - East side Main Hall | Brown/white, fibrous material | No asbestos fibres detected | |
| AB-20 | 552212336-0020 | --- | Ceiling tile (fissure pattern) - Central Main Hall | Grey/white, fibrous material | No asbestos fibres detected | |
| AB-21 | 552212336-0021 | --- | Ceiling tile (smooth, painted) - Near stage, Main Hall | Brown/black, fibrous material | No asbestos fibres detected | |
| AB-22 | 552212336-0022 | --- | Canvas Door stripping - East side door exterior | Grey/white, fibrous material | No asbestos fibres detected | |

| TABLE 2: SAMPLING INFORMATION SUMMARY - LEAD | | | | |
|---|---|---|---|---|
| **Wood Sample No.** | **Lab ID No.** | **Photograph No.** | **Sample Description and Location** | **Laboratory Results Total Lead ppm (mg/kg)** |
| PB-01 | 552212287-0001 | 3 | White paint - Exterior East Side | <80 |
| PB-02 | 552212287-0002 | 1 | Blue Paint - Exterior Main Door | 1600 |
| PB-03 | --- | 2 | White Paint - Metal Cladding Northwest corner | Insufficient sample |
| PB-04 | --- | --- | Blue paint - Metal Cladding east side | Insufficient sample |
| PB-05 | 552212287-0005 | --- | Grey Paint - Flooring Basement Bar/Storage Room | <81 |
| PB-06 | 552212287-0006 | --- | White paint - Basement bar/storage room Wall | <82 |
| PB-07 | 552212287-0007 | 10 | Brown paint - Main entrance north wall | <80 |
| PB-08 | 552212287-0008 | 10 | Beige paint - Main entrance wall trim | <150 |
| PB-09 | 552212287-0009 | 9 | Beige paint - Main Bar Wall | <380 |
| PB-10 | 552212287-0010 | 8 | Brown paint - Main Stage | <82 |
| PB-11 | 552212287-0011 | 8 | Dark Brown Paint - South side of main stage | <83 |

# Appendix C

# Site Photographs


Photograph 1: The Site as viewed from the north showing the adjacent sidewalk.

Photograph 2: The Site as viewed from the northwest. The back lane is visible in the foreground.

Photograph 3: View of exterior of the building from the southwest.

Photograph 4: View of entrance to basement level. Resilient floor tiles and lighting fixtures visible.

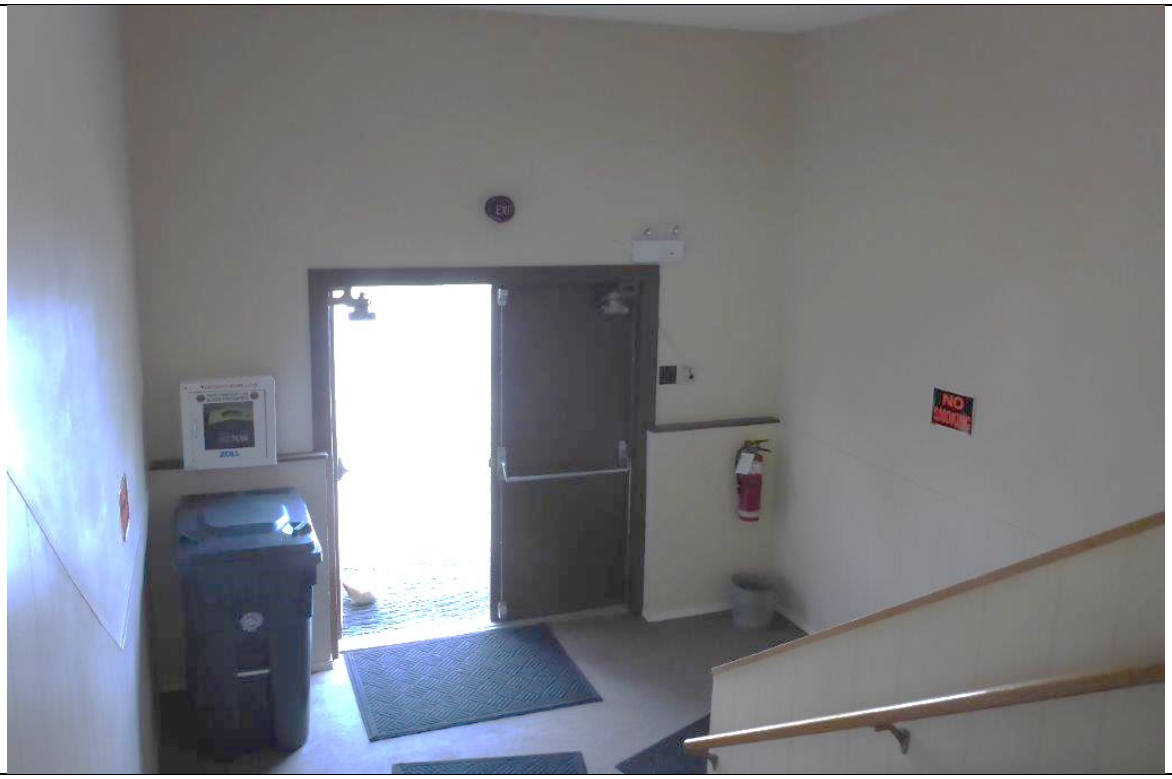
Photograph 5: Resilient floor tile within the women's washroom (basement).

Photograph 6: Gypsum board within furnace room (basement).

Photograph 7: The kitchen (basement). Fire suppression system located on wall near range hood.

Photograph 8: Main floor hall and stage.


Photograph 9: Main floor bar room. Refrigeration and freezer unit.



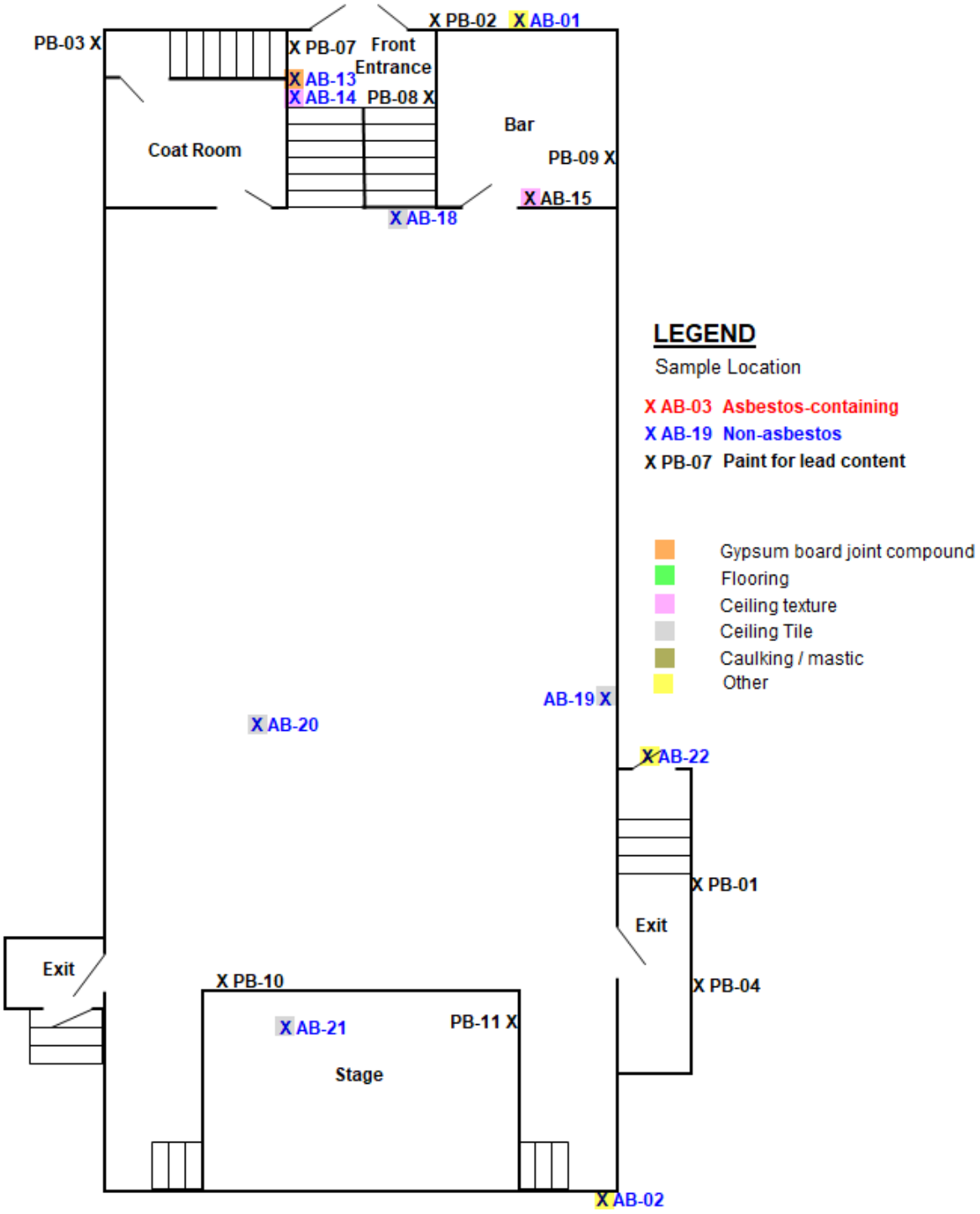

Photograph 10: Main entrance to hall/stairwell.

Photograph 11: Attic crawl space above main floor.

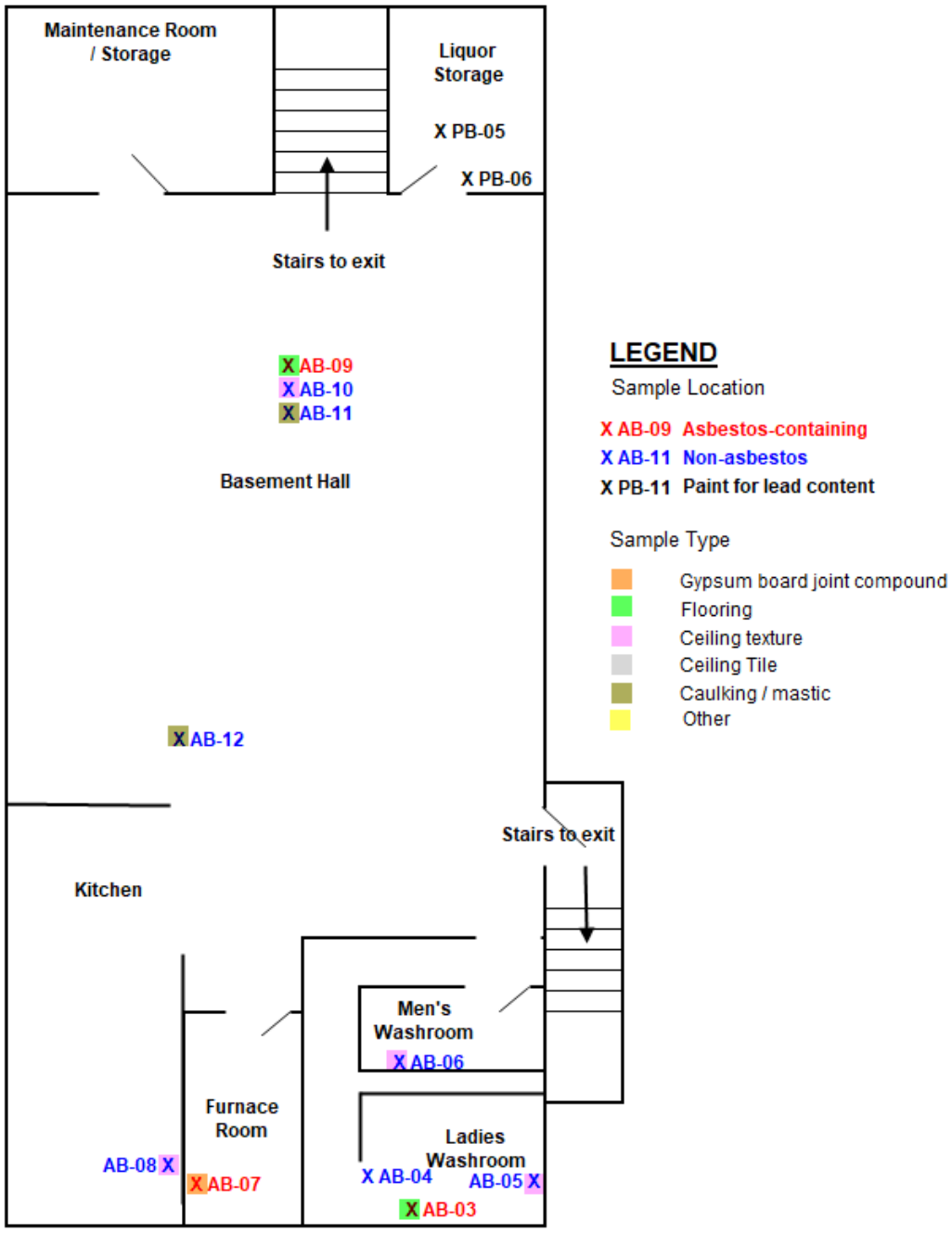
Photograph 12: Exterior side corridor from main hall located on southeast side of building.

# Appendix D

# Site Plan Showing Asbestos Sampling Locations




| | | | | |
|---|---|---|---|---|
| wood. | | **Plan Showing Sampling Locations<br>Main Floor<br>Blackie Community Hall<br>1205 Railway Avenue<br>Blackie, Alberta** | | |
| Scale: N.T.S. | Date: August 2022 | Drawn: SZ | Project No.: CT220115 | Figure 1 |




| | | | | |
|---|---|---|---|---|
| wood. | | **Plan Showing Sampling Locations<br>Basement Floor<br>Blackie Community Hall<br>1205 Railway Avenue<br>Blackie, Alberta** | | |
| Scale: N.T.S. | Date: August 2022 | Drawn: SZ | Project No.: CT220115 | Figure 2 |

# Appendix E

# Laboratory Reports

# EMSL Canada Inc.

**2756 Slough Street Mississauga, ON L4T 1G3**
Tel/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com / torontolab@emsl.com


**EMSL Canada Order:** 552212336
**Customer ID:** 55AGRA55
**Customer PO:**
**Project ID:**

**Attention:** Silvan Zorzut
Wood E&IS Canada Ltd
5681 70th St
Edmonton, AB T6B 3P6

**Project:** CT220115.1000.0000

**Phone:** (780) 436-2152
**Fax:** (780) 435-8425
**Received Date:** 08/10/2022 9:58 AM
**Analysis Date:** 08/17/2022
**Collected Date:**

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

| | | | Non-Asbestos | | Asbestos |
|---|---|---|---|---|---|
| **Sample** | **Description** | **Appearance** | **% Fibrous** | **% Non-Fibrous** | **% Type** |
| AB-01<br>*552212336-0001* | Parging - Main Entrance North | Gray<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| AB-02<br>*552212336-0002* | Parging - Southeast Corner | Gray<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| AB-03-Floor Tile<br>*552212336-0003* | Resilient Floor Tile - Women's Washroom | Green<br>Non-Fibrous<br>Homogeneous | | 99% Non-fibrous (Other) | 1% Chrysotile |
| AB-03-Mastic<br>*552212336-0003A* | Resilient Floor Tile - Women's Washroom | Black<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| AB-04<br>*552212336-0004* | Mortar - Ceramic Tiles Women's Washroom | White<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| AB-05<br>*552212336-0005* | Ceiling Texture - Women's Washroom | White<br>Fibrous<br>Homogeneous | 2% Cellulose | 98% Non-fibrous (Other) | None Detected |
| AB-06<br>*552212336-0006* | Ceiling Texture - Men's Washroom | White<br>Fibrous<br>Homogeneous | 2% Cellulose | 98% Non-fibrous (Other) | None Detected |
| AB-07<br>*552212336-0007* | Gypsum board joint compound - Furnace Room | Beige<br>Non-Fibrous<br>Homogeneous | | 98% Non-fibrous (Other) | 2% Chrysotile |
| AB-08<br>*552212336-0008* | Ceiling Texture - Basement kitchen | White/Yellow<br>Fibrous<br>Homogeneous | 5% Cellulose | 95% Non-fibrous (Other) | None Detected |
| AB-09-Floor Tile<br>*552212336-0009* | Resilient Floor Tiles - Basement Hall | Green<br>Non-Fibrous<br>Homogeneous | | 99% Non-fibrous (Other) | 1% Chrysotile |
| AB-09-Mastic<br>*552212336-0009A* | Resilient Floor Tiles - Basement Hall | Black<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| AB-10<br>*552212336-0010* | Ceiling Texture - Basement Hall | White<br>Fibrous<br>Homogeneous | 3% Cellulose | 97% Non-fibrous (Other) | None Detected |
| AB-11<br>*552212336-0011* | Caulking - Base of pole (central) Basement Hall | White<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| AB-12<br>*552212336-0012* | Caulking - Base of pole Basement Bar/Storage room | White<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| AB-13<br>*552212336-0013* | Gypsum board joint compound - North side of Main Stairwell | White<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| AB-14<br>*552212336-0014* | Ceiling texture - Main Stairwell | White<br>Fibrous<br>Homogeneous | 2% Cellulose | 98% Non-fibrous (Other) | None Detected |

Initial report from: 08/17/2022 18:44:29

**EMSL Canada Inc.**
**2756 Slough Street Mississauga, ON L4T 1G3**
Tel/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com / torontolab@emsl.com

| | |
|---|---|
| **EMSL Canada Order:** | 552212336 |
| **Customer ID:** | 55AGRA55 |
| **Customer PO:** | |
| **Project ID:** | |

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

| | | | Non-Asbestos | | Asbestos |
|---|---|---|---|---|---|
| **Sample** | **Description** | **Appearance** | **% Fibrous** | **% Non-Fibrous** | **% Type** |
| AB-15<br>*552212336-0015* | Ceiling texture - Main Bar | White<br>Fibrous<br>Homogeneous | 2% Cellulose | 98% Non-fibrous (Other) | None Detected |
| AB-16<br>*552212336-0016* | Ceiling Tile - Attic | Brown/White<br>Fibrous<br>Homogeneous | 90% Cellulose | 10% Non-fibrous (Other) | None Detected |
| AB-17<br>*552212336-0017* | Insulation - Attic | Brown/Gray<br>Fibrous<br>Homogeneous | 90% Glass | 10% Non-fibrous (Other) | None Detected |
| AB-18<br>*552212336-0018* | Ceiling tile (fissure pattern) - North side Main Hall | Gray/White<br>Fibrous<br>Homogeneous | 40% Cellulose<br>40% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| AB-19<br>*552212336-0019* | Ceiling tile (smooth pattern) - East side Main Hall | Brown/White<br>Fibrous<br>Homogeneous | 90% Cellulose | 10% Non-fibrous (Other) | None Detected |
| AB-20<br>*552212336-0020* | Ceiling tile (fissure pattern) - Central Main Hall | Gray/White<br>Fibrous<br>Homogeneous | 40% Cellulose<br>40% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| AB-21<br>*552212336-0021* | Ceiling tile (smooth, painted) - Near stage, Main Hall | Brown/Black<br>Fibrous<br>Homogeneous | 90% Cellulose | 10% Non-fibrous (Other) | None Detected |
| AB-22<br>*552212336-0022* | Canvas Door stripping - East side door exterior | Gray/White<br>Fibrous<br>Homogeneous | 90% Cellulose | 10% Non-fibrous (Other) | None Detected |

Analyst(s)
*Vanessa Gallego (24)*

[redacted]
Matthew Davis or other approved signatory
or Other Approved Signatory



Initial report from: 08/17/2022 18:44:29

**EMSL Canada Inc.**
**2756 Slough Street, Mississauga, ON L4T 1G3**
Phone/Fax: (289) 997-4602 / (289) 997-4607
http://www.EMSL.com torontolab@emsl.com

| | |
|---|---|
| EMSL Canada Or | 552212287 |
| CustomerID: | 55AGRA55 |
| CustomerPO: | 5290.5730-00 |
| ProjectID: | |

Attn: **Silvan Zorzut**
**Wood E&IS Canada Ltd**
**5681 70th St**
**Edmonton, AB T6B 3P6**

Phone: (780) 436-2152
Fax: (780) 435-8425
Received: 8/10/2022 09:58 AM
Collected:

Project: **CT2200115.1000.0000**

# Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

| *Client SampleDescription* | *Collected* | *Analyzed* | *Weight* | *RDL* | *Lead Concentration* |
|---|---|---|---|---|---|
| PB-01 | | 8/11/2022 | 0.2540 g | 80 mg/Kg | <80 mg/Kg |
| *552212287-0001* | Site: White Paint - Exterior East Side | | | | |
| PB-02 | | 8/11/2022 | 0.2478 g | 81 mg/Kg | 1600 mg/Kg |
| *552212287-0002* | Site: Blue Paint - Exterior Main Door | | | | |
| PB-05 | | 8/11/2022 | 0.2465 g | 81 mg/Kg | <81 mg/Kg |
| *552212287-0005* | Site: Grey Paint - Flooring Basement Bar/Storage Room | | | | |
| PB-06 | | 8/11/2022 | 0.2445 g | 82 mg/Kg | <82 mg/Kg |
| *552212287-0006* | Site: White Paint - Basement Bar/Storage Room Wall | | | | |
| PB-07 | | 8/11/2022 | 0.2516 g | 80 mg/Kg | <80 mg/Kg |
| *552212287-0007* | Site: Brown Paint - Main Entrance North Wall | | | | |
| PB-08 | | 8/11/2022 | 0.1376 g | 150 mg/Kg | <150 mg/Kg |
| *552212287-0008* | Site: Beige Paint - Main Entrance Wall Trim<br>insufficient sample to reachreporting limit | | | | |
| PB-09 | | 8/11/2022 | 0.0529 g | 380 mg/Kg | <380 mg/Kg |
| *552212287-0009* | Site: Beige Paint - Main Bar Wall<br>insufficient sample to reachreporting limit | | | | |
| PB-10 | | 8/11/2022 | 0.2444 g | 82 mg/Kg | <82 mg/Kg |
| *552212287-0010* | Site: Brown Paint - Main Stage | | | | |
| PB-11 | | 8/11/2022 | 0.2400 g | 83 mg/Kg | <83 mg/Kg |
| *552212287-0011* | Site: Dark Brown Paint - South Side Main Stage | | | | |

Rowena Fanto, Lead Supervisor
or other approved signatory


* Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON AIHA-LAP, LLC - ELLAP #196142

Report Amended: 08/22/2022 10:56:44 Replaces the Inital Report 08/17/2022 08:48:25. Reason Code: Client-Change to Appearance

# Appendix F

# Limitations

## STANDARD LIMITATIONS

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:

   (a) The Standard Terms and Conditions which form a part of our Professional Services Contract or which have been acknowledged;
   (b) The Scope of Services;
   (c) Time and Budgetary limitations as described in our Contract; and
   (d) The Limitations stated herein.

2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.

3. The conclusions presented in this report were based, in part, on visual observations of the site and attendant structures. Our conclusions cannot and are not extended to include those portions of the site or structures, which were not reasonably available, in Wood's opinion, for direct observation.

4. The environmental conditions at the site were assessed, within the limitations set out above, having due regard for applicable environmental regulations as of the date of the inspection. A review of compliance by past owners or occupants of the site with any applicable local, provincial or federal by-laws, orders-in-council, legislative enactments and regulations was not performed.

5. The site history research included obtaining information from third parties and employees or agents of the owner. No attempt has been made to verify the accuracy of any information provided, unless specifically noted in our report.

6. Where testing was performed, it was carried out in accordance with the terms of our contract providing for testing. Other substances, or different quantities of substances testing for, may be present on site and may be revealed by different or other testing not provided for in our contract.

7. Because of the limitations referred to above, different environmental conditions from those stated in our report may exist. Should such different conditions be encountered, Wood must be notified in order that it may determine if modifications to the conclusions in the report are necessary.

8. The utilization of Wood's services during the implementation of any remedial measures will allow Wood to observe compliance with the conclusions and recommendations contained in the report. Wood's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.

9. Any use of this report by a third party and any decision made based on the information contained in this report by the third party is the sole responsibility of the third party. Wood will not accept any responsibility for damages resulting from a decision or an action made by a third party based on the information contained in this report.

WALLACE EXCAVATING LTD

**Date:** September 14th, 2022

Foothills County
Darcy Harper
[redacted]
Darcy.harper@foothillscountyab.ca

**Re:** DEMOLITION & BACKFILL – 1205 – RAILWAY AVE, BLACKIE, AB

Dear Darcy,

Thank you for the opportunity to provide you with the quote for the above-mentioned project.

1. Inclusions:

## Demolition

1. We have allowed for the mechanical demolitions and removal from the site, existing building, and foundations.
2. Haul away all rubble and debris.
3. Pay all dumping charges.
4. Leave site clean and safe.
5. We assume the project will be done in three phases.

    a. Phase One – Asbestos Removal.
    b. Phase Two - Demolition of the existing buildings & Foundations.
    c. Phase Three – Backfill and compaction to existing grade.

**Total Demolitions** **$46,400.00 (Excl Taxes)**

## Backfill & Top-Soil (No Seeding)

1. Backfill of basement where building was removed utilizing material from County's Fill Site.
2. 12" of Topsoil used as top layer.
3. Leave site clean and safe.

**Total Backfill and Top-Soil** **$34,800.00 (Excl Taxes)**

## Asbestos Removal

1. Removal, transport, and disposal of asbestos containing flooring from * delineated area following medium risk asbestos abatement procedures.
2. Basement Removal, transport, and disposal of asbestos containing drywall from * delineated area following high risk asbestos abatement procedures.

Outlined abatement work to follow specific provincial risk abatement procedures.

3. Water and power to be supplied by client. If water and power not available, a daily rate will be added for daily generator and water rates.
4. A suitable location for placement of a waste disposal bin to be provided by the client.
5. BWE will not be held responsible for secondary damages caused to the property by building of containments, demolition work, and standard abatement procedures including, but not limited to: damage to paint, tape residue, staple holes, light abrasion, etc. Our teams are instructed to take extraordinary measures to prevent damage, and to protect all property on site.
6. This estimate is subject to change should the scope of work or level of risk change or evolve. These changes include, but are not limited to
    a. additional hazardous materials found
    b. client requests/new work
    c. double drywall/hidden ACM
    d. loose insulation found during ceiling removal (damaged or no vapor barrier)

| | |
|---|---|
| Total Asbestos Removal | $7,200.00 (Excl Taxes) |

## 2. Exclusions:

1. Removal of hazardous materials.
2. Capping off existing services at property line – By Others.
3. We did not include any cost, if for some reason the project is stopped outside our control, we can provide an hourly or daily rate for these circumstances.
4. ATCO Disconnect Excluded.
5. Permitting excluded.
6. Shotcrete if required.
7. The customer is responsible for safety fencing.
8. Removal of any trees or brush.
9. Taxes

## 3. Terms and Conditions:

1. The quote is valid for 15 days.
2. Payment Terms – 15 Days
3. If water crimp is required, it will be an additional $1,500.00
4. We require a 15-business day notice to schedule the work.
5. Unless noted, the customer is responsible for safety fencing.
6. Work can only start once the appropriate permitting is in place from the authorities.
7. No holdbacks or back charges will be accepted.
8. We will do our best to protect the sidewalk during demolition, however, we are not responsible for cracked or broken sidewalks.

*Client Accept:* _____

9. Cost Summary as Follow:

| | | |
|---|---|---|
| a. | Demolition | $46,400.00 (Excl Tax) |
| b. | Backfill | $34,800.00 (Excl Tax) |
| c. | Asbestos Removal | $ 7,200.00 (Excl Tax) |
| | **Total** | **$ 88,400.00 (Excl Tax)** |

We thank you for the opportunity to quote for this job. Should you require any additional information or wish to discuss your project further, please contact us directly.

Regards,

Arthur Atkinson
[redacted]
arthura@bobwallaceexcavating.ca
212 Macleod Trail W,
Dewinton
T1S 5J4

**MD Foothills County** *(Approval)*

Darcy Harper_____