SPECIFICATION

REMOVAL OF VARIOUS SURPLUS INFRASTRUCTURE AT BACCALIEU LIGHT STATION

BACCALIEU ISLAND, NL

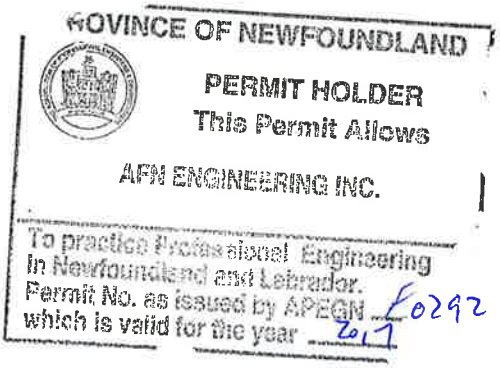
PROJECT NUMBER: F6879-171005

PREPARED FOR

Fisheries and Oceans Canada

DATE

June 24, 2017
Revision 1



Removal of Various Surplus Infrastructure
at the Baccalieu Light station
P/N: F6879-171005 2017-06-24

DRAWING NO	TITLE
02C0201A005C1	Site Plan
02C0201A005C2	Plans - Dwelling
02C0201A005C3	Elevations - Dwelling
02C0201A005C4	Plans – Upper and Lower Winch Houses
02C0201A005C5	Plan – Equipment Building

1.1 SCOPE

.1 The work consists of the furnishing of all plant, labour, equipment and material for demolition and removal of various infrastructure and hazardous materials at the Baccalieu Light station, NL, in strict accordance with specifications and accompanying drawings and subject to all terms and conditions of the Contract. The Site is situated approximately 3km off the tip of the Bay de Verde Peninsula and is one of the largest protected seabird islands in Newfoundland.

.2 DFO will schedule a site visit during the tender period. The site visit will occur over a one day period with helicopter flights leaving from the Bay De Verde area to the Site (flight will return to Bay De Verde – Contractor responsible for all costs associated with getting from home base to Bay De Verde). Departmental Representative will pay for helicopter services associated with the one day site visit held during the tender period. Contractors wishing to visit site shall contact the Departmental Representative to obtain flight times/schedule. A maximum of 1 person per Contractor will be permitted and time allocated on site will be a maximum of 2 hours.

.3 Under this contract, DFO will provide helicopter services for all slinging purposes associated with removing demolition debris from the site. The services will only be provided between the work site and Bay De Verde. Contractor responsible for all slinging materials and activities (packaging, loading, off-loading, signallers, lifting hooks, clamps, rigging plans, etc.). The maximum amount of weight permitted during slinging

operations is 1,200 pounds. Chopper services are variable due to inclement weather and other coast guard operations and in this regard downtime is to be expected (there will be no additional contract costs if chopper services are unavailable when requested by the Contractor). Off-loading locations (in Bay De Verde) and rigging plans are to be approved by the Departmental Representative.

.4 Under this contract, DFO will provide helicopter services for Contractor mobilization and demobilization activities. The services will only be provided between the work site and Bay De Verde. Mobilization is limited to four (4) return trips between Bay De Verde and the work site. Similarly, demobilization is limited to four (4) return trips between Bay De Verde and the work site. The maximum number of personnel to be accommodated during mobilization and demobilization activities is five (5). The maximum amount of weight during slinging operations for mobilizing/demobilizing equipment and materials is 1,200 pounds. During all mobilization activities DFO will not be held responsible for any lost or damaged equipment and materials. Contractor responsible to fully secure and contain all materials/equipment/fuels/etc. If in the opinion of the Departmental Representative (or the coast guard pilot), the materials are not properly secured and contained, the chopper will not provide the services to the Contractor. Similar to services provided during slinging demolition debris, chopper services are variable due to inclement weather and

other coast guard operations and in this regard downtime is to be expected (there will be no additional contract costs if chopper services are unavailable when requested by the Contractor to mobilize/demobilize).

1.2 DESCRIPTION OF WORK

.1 In general, work under this contract consists of, but will not necessarily be limited to, the following:

.1 Demolition, removal and disposal of the double dwelling. Note that the concrete foundation, including above grade concrete foundation walls associated with the dwelling can remain. Contractor to be prepared to core 150mm diameter core holes in the cistern to prevent future water ponding (see drawings). For Bidding, assume that 12 core holes through 200mm thick reinforced concrete will be required. The Departmental Representative will provide direction related to the core holes (including specific locations), while in the field.

.2 Demolition, removal and disposal of the old equipment building, upper and lower winch houses, landings, access stairs, stairways, tramway and hoists as noted on the drawings. Note that the infrastructure to be removed contains treated timber.

.3 For all concrete foundations to remain, remove flaking/peeling paint down to the bare concrete and dispose of paint chips as hazardous lead waste. This includes exterior foundation walls, interior floor slabs and basement slabs.

.4 Removal and disposal of all furniture, equipment, loose materials and debris on both the inside and outside of the building infrastructure, including materials scattered around the site.

Do not proceed with any portion of the demolition work until the Departmental Representative has approved the Contractor's written demolition work plan.

1.3 SITE OF WORK

.1 Work will be carried out at Baccalieu Island, NL. The Site is a remote site, only accessible by boat or helicopter. However, there is no safe landing area for a boat at this site.

1.4 DATUM

.1 Datum used for this project is Lowest Normal Tides (LNT). If requested by the Contractor, the Departmental Representative will establish a benchmark prior to the start of deconstruction activities.

.2 Bidders are advised to consult the Tide Tables issued by Fisheries and Oceans in order to make sure of the tidal conditions affecting work.

1.5 FAMILIARIZATION WITH SITE

.1 Before submitting a bid, it is recommended that bidders visit the site and its surroundings to review and verify the form, nature and extent of the work, materials needed for the completion of the work, the means of access to the site, severity, exposure and uncertainty of weather, soil conditions, any accommodations they may require, and in

general shall obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid or costs to do the work. No allowance shall be made subsequently in this connection on account of error or negligence to properly observe and determine the conditions that will apply.

.2 Contractors, bidders or those they invite to site are to review specification Section 01 35 29 - Health and Safety Requirements before visiting site. Take all appropriate safety measures for any visit to site, either before or after acceptance of bid.

.3 Obtain prior permission from the Departmental Representative before carrying out such site inspection.

1.6 CODES AND STANDARDS

.1 Perform work in accordance with the latest edition of the National Building Code of Canada, and any other code of provincial or local application including all amendments up to project bid closing date provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.

.2 Materials and workmanship must meet or exceed requirements of specified standards, codes and referenced documents.

1.7 TERM ENGINEER

.1 Unless specifically stated otherwise, the term Engineer where used in the Specifications and on the Drawings shall mean the Departmental Representative.

1.8 SETTING OUT WORK

.1 Set grades and layout work in detail from control points and grades established by Departmental Representative.

.2 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated or as directed by Departmental Representative.

.3 Provide devices needed to layout and construct work.

.4 Supply such devices required to facilitate Departmental Representative's inspection of work.

.5 Supply stakes and other survey markers required for laying out work.

1.9 COST BREAKDOWN

.1 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price.

.2 Provide cost breakdown in same format as the numerical and subject title system used in this specification project manual and thereafter sub-divided into major work components as directed by Departmental Representative.

.3 Upon approval by Departmental Representative, cost breakdown will be used as basis for progress payment.

.4 This will be a lump sum project. Individual work items will not be measured separately for payment.

1.10 WORK SCHEDULE

.1 Submit within 7 work days of notification of acceptance of bid, a construction schedule showing commencement and completion of all work within the time stated on the Bid and Acceptance Form and the date stated in the bid acceptance letter.

.2 Provide sufficient details in schedule to clearly illustrate entire implementation plan, depicting efficient coordination of tasks and resources, to achieve completion of work on time and permit effective monitoring of work progress in relation to established milestones.

.3 As a minimum, work schedule to be prepared and submitted in the form of Bar (GANTT) Charts, indicating work activities, tasks and other project elements, their anticipated durations and planned dates for achieving key activities and major project milestones provided in sufficient details and supported by narratives to demonstrate a reasonable plan for completion of project within designated time. Generally Bar Charts derived from commercially available computerized project management system are preferred but not mandatory.

.4 Submit schedule updates on a minimum bi-weekly basis and more often, when requested by Departmental Representative, due to frequent changing project conditions. Provide a narrative explanation of necessary changes and schedule revisions at each update.

.5 The schedule, including all updates, shall be to Departmental Representative's approval. Take necessary measures to

complete work within approved time. Do not change schedule without Departmental Representative's approval.

.6 All work on the project will be completed within the time indicated on the Bid and Acceptance Form.

1.11 ABBREVIATIONS

.1 Following abbreviations of standard specifications have been used in this specification and on the drawings:

CGSB - Canadian Government Specifications Board
CSA - Canadian Standards Association
NLGA - National Lumber Grades Authority
ASTM - American Society for Testing and Materials

.2 Where these abbreviations and standards are used in this project, latest edition in effect on date of bid call will be considered applicable.

1.12 SITE OPERATIONS

.1 Arrange for sufficient space adjacent to project site for conduct of operations, storage of materials and so on. Exercise care so as not to obstruct or damage public or private property in area. All arrangements for space and access will be made by Contractor.

1.13 PROJECT MEETINGS

.1 Departmental Representative will arrange project meetings and assume responsibility for setting times and recording minutes.

.2 Project meetings will take place on site of work unless so directed by the Departmental Representative.

.3 Departmental Representative will assume

responsibility for recording minutes of meetings and forwarding copies to all parties present at the meetings.

.4 Have a responsible member of firm present at all project meetings.

1.14 PROTECTION

.1 Store all materials and equipment to be incorporated into work to prevent damage by any means.

.2 Repair or replace all materials damaged in transit or storage to the satisfaction of Departmental Representative and at no cost to Canada.

1.15 EXISTING SERVICES

.1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to site operations, and tenant operations.

.2 Before commencing work, establish location and extent of service lines in area of work and notify Departmental Representative of findings.

.3 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility.

.4 Provide temporary services when directed by Departmental Representative to maintain critical facility systems.

.5 Provide adequate bridging over trenches which cross walkways or roads to permit normal traffic.

.6 Where unknown services are encountered,

immediately advise Departmental Representative and confirm findings in writing.

.7 When inactive services are encountered, cap off in manner approved by authorities having jurisdiction over service. Record locations of maintained, re-routed and abandoned service lines.

1.16 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each of the following:
.1 Contract Drawings
.2 Specifications
.3 Addenda
.4 Contract and any resulting amendments signed by contracting authority.
.5 Test Reports
.6 Copy of Approved Work Schedule
.7 Site specific Health and Safety Plan and other safety related documents

1.17 PERMITS

.1 Obtain and pay for all permits, certificates and licenses as required by Municipal, Provincial, Federal and other Authorities.

.2 Provide appropriate notifications of project to municipal and provincial inspection authorities.

.3 Obtain compliance certificates as prescribed by legislative and regulatory provisions of municipal, provincial and federal authorities as applicable to the performance of work.

.4 Submit to Departmental Representative, copy of application submissions and approval documents received for above

referenced authorities.

.5 Comply with all requirements, recommendations and advice by all regulatory authorities unless otherwise agreed in writing by Departmental Representative. Make requests for such deviations to these requirements sufficiently in advance of related work.

1.18 CUTTING, FITTING AND PATCHING

.1 Execute cutting, including excavation, fitting and patching required to make work fit properly.

1.19 ACCEPTANCE

.1 Prior to the issuance of the Certificate of Substantial Performance, in company with Departmental Representative, make a check of all work. Correct all discrepancies before final inspection and acceptance.

1.20 WORKS COORDINATION

.1 Responsible for coordinating the work of the various trades, where the work of such trades interfaces with each other.

.2 Convene meetings between trades whose work interfaces and ensure that they are fully aware of the areas and the extent of where interfacing is required. Provide each trade with the plans and specifications of the interfacing trade, as required, to assist them in planning and carrying out their respective work.

.3 Canada will not be responsible for or held accountable for any extra costs incurred as a result of the failure to carry out coordination work. Disputes between the various trades as a result of their not

being informed of the areas and extent of interface work shall be the sole responsibility of the General Contractor and shall be resolved at no extra cost to Canada.

1.21 CONTRACTOR'S USE OF SITE

.1 Responsible for arranging the storage of materials on or off site, and any materials stored at the site which interfere with any of the day to day activities at or near the site will be moved promptly at the Contractor's expense, upon request by Departmental Representative.

.2 Exercise care so as not to obstruct or damage public or private property in the area.

.3 At completion of work, restore area to its original condition. Damage to ground and property will be repaired by Contractor. Remove all construction materials, residue, excess, etc., and leave site in a condition acceptable to Departmental Representative.

.4 Provide secure laydown area, as required, to accommodate temporary storage of hazardous materials pending removal from Island.

1.22 WORK COMMENCEMENT

.1 Mobilization to project site is to commence immediately after acceptance of bid and submission of Site Specific Safety Plan and insurance and bonding documentation, unless otherwise agreed by Departmental Representative.

.2 Project work on site is to commence as soon as possible, with a continuous

reasonable work force, unless otherwise agreed by Departmental Representative.

.3 Weather conditions, short construction season, delivery challenges and the location of the work site may require the use of longer working days and additional work force to complete the project within the specified completion time.

.4 Make every effort to ensure that sufficient material and equipment is delivered to site at the earliest possible date after acceptance of bid and replenished as required.

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Product data.

.2 Samples.

.3 Certificates.

1.2 SUBMITTAL GENERAL REQUIREMENTS

.1 Submit to Departmental Representative for review submittals listed, including samples, certificates and other data, as specified in other sections of the Specifications. Note that any and all changes to the contract will have to be approved in writing by the Contracting Authority.

.2 Submit with reasonable promptness and in orderly sequence so as to allow for Departmental Representative's review and not cause delay in Work. Failure to submit in ample time will not be considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.

.3 Do not proceed with work until relevant submissions are reviewed by Departmental Representative.

.4 Present product data, samples and mock-ups in SI Metric units.

.5 Where items or information is not produced in SI Metric units, provide soft converted values.

.6 Review submittals prior to submission to Departmental Representative. Ensure during

review that necessary requirements have been determined and verified, required field measurements or data have been taken, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.

.1 Submittals not stamped, signed, dated and identified as to specific project will be returned unexamined by Departmental Representative and considered rejected.

.7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.8 Verify field measurements and affected adjacent work and coordinate.

.9 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.

.11 Submittal format: paper originals, or alternatively clear and fully legible photocopies of originals. Facsimiles are not acceptable, except in special circumstances pre-approved by Departmental Representative. Poorly printed non-legible photocopies or facsimiles will not be accepted and be returned for resubmission.

.12 Make changes or revision to submissions which Departmental Representative may require, consistent with Contract Documents and resubmit as directed by Departmental

Representative. When resubmitting, notify Departmental Representative in writing of any revisions other than those requested.

.13 Keep one reviewed copy of each submittal document on site for duration of Work.

1.3 PRODUCT DATA

.1 Product data includes drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit sufficient copies of product data which are required by the General Contractor and sub-contractors plus 2 copies which will be retained by Departmental Representative. Ensure sufficient numbers are submitted to enable one complete set to be included in each of the maintenance manuals specified, if applicable.

.3 Allow 10 calendar days for Departmental Representative's review of each submission.

.4 Adjustments or corrections made on product data by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, advise Departmental Representative in writing prior to proceeding with Work.

.5 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections and comments are made, fabrication and installation may proceed upon receipt of shop drawings. If product data are rejected and noted to be Resubmitted, do not proceed with that portion of work until resubmission and review of corrected product data, through same submission procedures indicated above.

.6 Accompany each submission with transmittal letter, containing:
.1 Date.
.2 Project title and project number.
.3 Contractor's name and address.
.4 Identification and quantity of each product data and sample.
.5 Other pertinent data.

.7 Submissions shall include:
.1 Date and revision dates.
.2 Project title and project number.
.3 Name and address of:
.1 Subcontractor.
.2 Supplier.
.3 Manufacturer.
.4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
.5 Cross references to particular details of contract drawings and specifications section number for which product data submission addresses.
.6 Details of appropriate portions of Work.

.8 After Departmental Representative's review, distribute copies.

.9 The review of product data by the Departmental Representative or their delegated representative is for sole purpose of ascertaining conformance with general concept. This review shall not mean that Public Works and Government Services Canada approves the detail design inherent in the product data, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in product data or of responsibility for meeting all requirements of the construction and

Contract Documents. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

1.4 SCHEDULES, PERMITS AND CERTIFICATES

.1 Upon acceptance of bid, submit to Departmental Representative copy of Work Schedule and various other schedules, permits, certification documents and project management plans as specified in other sections of the Specifications.

.2 Submit copy of permits, notices, compliance Certificates received by Regulatory Agencies having jurisdiction and as applicable to the Work.

.3 Submission of above documents to be in accordance with Submittal General Requirements procedures specified in this section.

1.1 SECTION INCLUDES

.1 Fire Safety Requirements.

.2 Hot Work Permit.

1.2 RELATED WORK

.1 Section 01 35 29 - Health and Safety Requirements.

1.3 REFERENCES

.1 Fire Protection Standards issued by Fire Protection Services of Human Resources Development Canada as follows:
.1 National Fire Code - Standard for Construction Operations – latest edition (http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/301/page00.shtml).
.2 National Fire Code - Standard for Welding and Cutting – latest edition (http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/302/page00.shtml).
.3 FCC standards, may also be viewed at the Regional Labour Canada Office located at Baine Johnson Centre, 10 Fort William Place, St. John’s, NL, A1C 1K4; Telephone 1-800-641-4049; fax 1-709-772-5985.

1.4 DEFINITIONS

.1 Hot Work defined as:
.1 Welding work.
.2 Cutting of materials by use of torch or other open flame devices.
.3 Grinding with equipment which produces sparks.

1.5 SUBMITTALS

.1 Submit copy of Hot Work Procedures and sample

of Hot Work permit to Departmental Representative for review, within five (5) calendar days after notification of acceptance of bid.

.2 Submit in accordance with the Submittal General Requirements specified in Section 01 33 00.

1.6 FIRE SAFETY REQUIREMENTS

.1 Implement and follow fire safety measures during Work. Comply with following:
.1 National Fire Code, latest edition.
.2 Fire Protection Standards FCC 301 and FCC 302 – latest edition.
.3 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29 – Health and Safety Requirements.

.2 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.

1.7 HOT WORK AUTHORIZATION

.1 Obtain Departmental Representative's written "Authorization to Proceed" before conducting any form of Hot work on site.

.2 To obtain authorization submit to Departmental Representative:
.1 Contractor's typewritten Hot Work Procedures to be followed on site as specified below.
.2 Description of the type and frequency of Hot Work required.

.3 Sample Hot Work Permit to be used.

.3 Upon review and confirmation that effective fire safety measures will be implemented during performance of hot work, Departmental Representative will provide authorization to proceed as follows:
.1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
.2 Separate work, or segregate certain parts of work, into individual entities. Each entity requiring a separately written "Authorization to Proceed" from Departmental Representative. Follow Departmental Representative's directives in this regard.

.4 Requirement for individual authorization based on:
.1 Nature or phasing of work;
.2 Risk to Facility operations;
.3 Quantity of various trades needing to perform hot work on project or;
.4 Other situation deemed necessary by Departmental Representative to ensure fire safety on premises.

.5 Do not perform any Hot Work until receipt of Departmental Representative's written "Authorization to Proceed" for that portion of work.

1.8 HOT WORK PROCEDURES

.1 Develop and implement safety procedures and work practices to be followed during the performance of Hot Work.

.2 Procedures to include:
.1 Requirement to perform hazard assessment of site and immediate hot work area for each hot work event in accordance with

Hazard Assessment and Safety Plan requirements of Section 01 35 29.
.2 Use of a Hot Work Permit system for each hot work event.
.3 The step by step process of how to prepare and issue permit.
.4 Permit shall be issued by Contractor's site Superintendent, or other authorized person designated by Contractor, granting permission to worker or subcontractor to proceed with hot work.
.5 Provision of a designated person to carryout a Fire Safety Watch for a minimum of 60 minutes immediately upon completion of the hot work.
.6 Compliance with fire safety codes and standards specified herein and occupational health and safety regulations specified in Section 01 35 29.

.3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Clearly label as being the Hot Work Procedures applicable to this contract.

.4 Hot Work Procedures shall clearly establish worker instructions and allocate responsibilities of:
.1 Worker(s),
.2 Authorized person issuing the Hot Work Permit,
.3 Fire Safety Watcher,
.4 Subcontractors and Contractor.

.5 Brief all workers and subcontractors on Hot Work Procedures and Permit system established for project. Stringently enforce compliance.
.1 Failure to comply with the established procedures may result in the issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible

disciplinary measures imposed as specified in Section 01 35 29.

1.9 HOT WORK PERMIT

.1 Hot Work Permit to include, as a minimum, the following data:
.1 Project name and project number.
.2 Building name, address and specific room or area where hot work will be performed.
.3 Date when permit issued.
.4 Description of hot work type to be performed.
.5 Special precautions required, including type of fire extinguisher needed.
.6 Name and signature of person authorized to issue the permit.
.7 Name of worker (clearly printed) to which the permit is being issued.
.8 Time Duration that permit is valid (not to exceed 8 hours). Indicate start time and date, and completion time and date.
.9 Worker signature with date and time upon hot work termination.
.10 Specified time period requiring safety watch.
.11 Name and signature of designated Fire Safety Watcher, complete with time and date when safety watch terminated, certifying that surrounding area was under continual surveillance and inspection during the full watch time period specified in Permit and commenced immediately upon completion of Hot Work.

.2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is included on form.

.3 Each Hot Work Permit to be completed in full and signed as follows:
.1 Authorized person issuing Permit before

hot work commences.
.2 Worker upon completion of Hot Work.
.3 Fire Safety Watcher upon termination of safety watch.
.4 Returned to Contractor's Site Superintendent for safe keeping.

1.10 DOCUMENTS ON SITE

.1 Keep Hot Work Permits and Hazard assessment documentation on site for duration of Work.

.2 Upon request, make available to Departmental Representative or to authorized safety representative for inspection.

1.1 RELATED WORK

.1 Section 01 35 24 - Special Procedures on Fire Safety Requirements.

1.2 DEFINITIONS

.1 COSH: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.

.2 Competent Person: means a person who is:
- .1 Qualified by virtue of personal knowledge, training and experience to perform assigned work in a manner that will ensure the health and safety of persons in the workplace, and;
- .2 Knowledgeable about the provisions of occupational health and safety statutes and regulations that apply to the Work and;
- .3 Knowledgeable about potential or actual danger to health or safety associated with the Work.

.3 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.

.4 PPE: personal protective equipment.

.5 Work Site: where used in this section shall mean areas, located at the premises where Work is undertaken, used by Contractor to perform all of the activities associated with the performance of the Work.

1.3 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00.

.2 Submit to Departmental Representative,

copies of the following documents including updates.

.1 Site specific Health and Safety Plan.

.2 Building permit, compliance certification and other permits obtained.

.3 Reports or directives issued by Federal and Provincial Inspectors and other Authorities having jurisdiction.

.4 Accident or incident reports.

.5 WHMIS – MSDS data sheets.

.6 Name of Contractor’s Representative designated to perform health and safety supervision in site.

.7 Certificate of clearance from Workplace Health Safety and Compensation Commission (Assessment Services Department) of Newfoundland and Labrador.

.3 Submit within five (5) work days of notification of Bid Acceptance. Provide one (1) copy.

.4 Departmental Representative will review Health and Safety Plan and provide comments.

.5 The Contractor will revise the Plan as appropriate and resubmit within five (5) work days after receipt of comments.

.6 Departmental Representative's review and comments made of the Plan shall not be construed as an endorsement, approval or implied warranty of any kind by Canada and does not reduce Contractor's overall responsibility for Occupational Health and Safety of the Work.

.7 Submit revisions and updates made to the Plan during the course of Work.

1.4 COMPLIANCE REQUIREMENTS

.1 Comply with the Occupational Health and Safety Act for the Province of Newfoundland and Labrador, and the Occupational Health and Safety Regulations made pursuant to the Act.

.2 Comply with Canada Labour Code Part II, (entitled Occupational Health and Safety) and the Canada Occupational Health and Safety Regulations (COSH) as well as any other regulations made pursuant to the Act.

.1 The Canada Labour Code can be viewed at: www.http://laws.justice.gc.ca/en/L-2/

.2 COSH can be viewed at: www.http://laws.justice.gc.ca/eng/SOR-86-304/ne.html.

.3 A copy may be obtained at: Canadian Government Publishing Public Works & Government Services Canada Ottawa, Ontario, K1A 0S9 Tel: (819) 956-4800 (1-800-635-7943) Publication No. L31-85/2000 E or F).

.3 Observe construction safety measures of:

.1 Part 8 of National Building Code.

.2 Municipal by-laws and ordinances.

.4 In case of conflict or discrepancy between any specified requirements, the more stringent shall apply.

.6 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof through submission of Certificate of Clearance from Workplace Health, Safety and Compensation Commission (Assessment Services Department) of Newfoundland and Labrador.

.7 Obtain and maintain worker medical

surveillance documentation where prescribed by legislation or regulation.

1.5 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property and for protection of persons and environment adjacent to the site to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by all workers, sub-contractors and other persons granted access to work site with safety requirements of Contract Documents, applicable Federal, Provincial, and local by-laws, regulations, and ordinances, and with site specific Health and Safety Plan.

1.6 SITE CONTROL AND ACCESS

.1 Control the Work and entry points to Work Site. Approve and grant access only to workers and authorized persons. Immediately stop and remove non-authorized persons.

.1 Departmental Representative will provide names of those persons authorized by Departmental Representative to enter onto Work Site and will ensure that such authorized persons have the required knowledge and training on Health and Safety pertinent to their reason for being at the site, however, Contractor remains responsible for the health and safety of authorized persons while at the Work Site.

.2 Isolate Work Site from other areas of the premises by use of appropriate means.

.1 Erect fences, hoarding, barricades and temporary lighting as required to effectively delineate the Work Site, stop non-authorized entry, and to

protect pedestrians and vehicular traffic around and adjacent to the Work and create a safe environment.

.2 Post signage at entry points and other strategic locations indicating restricted access and conditions for access.

.3 Use professionally made signs with bilingual message in the 2 official languages or international known graphic symbols.

.3 Provide safety orientation session to persons granted access to Work Site. Advise of hazards and safety rules to be observed while on site.

.4 Ensure persons granted site access wear appropriate PPE. Supply PPE to inspection authorities who require access to conduct tests or perform inspections.

.5 Secure Work Site against entry when inactive or unoccupied and to protect persons against harm. Provide security guard where adequate protection cannot be achieved by other means.

1.7 PROTECTION

.1 Give precedence to safety and health of persons and protection of environment over cost and schedule considerations for Work.

.2 Should unforeseen or peculiar safety related hazard or condition become evident during performance of Work, immediately take measures to rectify situation and prevent damage or harm. Advise Departmental Representative verbally and in writing.

1.8 FILING OF NOTICE

.1 File Notice of Project with pertinent provincial health and safety authorities prior to beginning of Work.

1.9 PERMITS

.1 Post permits, licenses and compliance certificates, specified in section 01 10 10, at Work Site.

.2 Where a particular permit or compliance certificate cannot be obtained, notify Departmental Representative in writing and obtain approval to proceed before carrying out applicable portion of work.

1.10 HAZARD ASSESSMENTS

.1 Perform site specific health and safety hazard assessment of the Work and its site.

.2 Carryout initial assessment prior to commencement of Work with further assessments as needed during progress of work, including when new trades and subcontractors arrive on site.

.3 Record results and address in Health and Safety Plan.

.4 Keep documentation on site for entire duration of the Work.

1.11 PROJECT/SITE CONDITIONS

.1 The following are known or potential project related safety hazards at site:

.1 Working in close proximity of water.
.2 Remote site location.
.3 Wet and slippery conditions.
.4 Inclement weather conditions.
.5 Tidal influences.
.6 Potential structural weakness of

existing structures.
.7 Heavy lifting.
.8 Bird droppings.
.9 Mould.
.10 Working at heights.
.11 Cutting tools and other construction power tools.
.12 Hazardous materials.
.13 Sharp objects (construction debris).
.14 Steep terrain/cliffs/risk of falling.
.15 Use of boats/vessels.
.16 Helicopter usage.

.2 Above items shall not be construed as being complete and inclusive of potential health, and safety hazards encountered during work.

.3 Include above items into hazard assessment process.

.4 Review the Hazardous Building Material Survey in Appendix A of this specification.

1.12 MEETINGS

.1 Contractor to hold pre-construction health and safety meeting prior to commencement of Work. Ensure attendance of:
.1 Superintendent of Work.
.2 Contractor’s designated Health & Safety Site Representative.
.3 Subcontractor’s Health and Safety Site Representative.
.4 Health and Safety Site Coordinator.

.2 Conduct regularly scheduled tool box and safety meetings during the Work in conformance with Occupational Health and Safety regulations.

.3 Keep documents on site.

1.13 HEALTH AND SAFETY PLAN

.1 Prior to commencement of Work, develop written Health and Safety Plan specific to the work. Implement, maintain, and enforce Plan for entire duration of Work and until final demobilization from site.

.2 Health and Safety Plan shall include the following components:

.1 List of health risks and safety hazards identified by hazard assessment.

.2 Control measures used to mitigate risks and hazards identified.

.3 On-site Contingency and Emergency Response Plan as specified below.

.4 On-site Communication Plan as specified below.

.5 Name of Contractor's designated Health & Safety Site Representative and information showing proof of his/her competence and reporting relationship in Contractor's company.

.6 Names, competence and reporting relationship of other supervisory personnel used in the Work for occupational health and safety purposes.

.3 On-site Contingency and Emergency Response Plan shall include:

.1 Operational procedures, evacuation measures and communication process to be implemented in the event of an emergency.

.2 Evacuation Plan: site and floor plan layouts showing escape routes, marshaling areas. Details on alarm notification methods, fire drills, location of fire fighting equipment and

other related data.

.3 Name, duties and responsibilities of persons designated as Emergency Warden(s) and deputies.

.4 Emergency Contacts: name and telephone number of officials from:

.1 General Contractor and subcontractors.

.2 Pertinent Federal and Provincial Departments and Authorities having jurisdiction.

.3 Local emergency resource organizations.

.4 On-site Communication Plan:

.1 Procedures for sharing of work related safety information to workers and subcontractors, including emergency and evacuation measures.

.5 Address all activities of the Work including those of subcontractors.

.6 Review Health and Safety Plan regularly during the Work. Update as conditions warrant to address emerging risks and hazards, such as whenever new trade or subcontractor arrive at Work Site.

.7 Departmental Representative will respond in writing, where deficiencies or concerns are noted and may request re-submission of the Plan with correction of deficiencies or concerns.

.8 Post copy of the Plan, and updates, prominently on Work Site.

1.14 SAFETY SUPERVISION

.1 Employ Health & Safety Site Representative responsible for daily supervision of health and safety of the Work.

.2 Health & Safety Site Representative may be the Superintendent of the Work or other person designated by Contractor and shall be assigned the responsibility and authority to:

- .1 Implement, monitor and enforce daily compliance with health and safety requirements of the Work
- .2 Monitor and enforce Contractor's site-specific Health and Safety Plan.
- .3 Conduct site safety orientation session to persons granted access to Work Site.
- .4 Ensure that persons allowed site access are knowledgeable and trained in health and safety pertinent to their activities at the site or are escorted by a competent person while on the Work Site.
- .5 Stop the Work as deemed necessary for reasons of health and safety.

.3 Health & Safety Site Representative must:

- .1 Be qualified and competent person in occupational health and safety.
- .2 Have site-related working experience specific to activities of the Work.
- .3 Be on Work Site at all times during execution of the Work.
- .4 All supervisory personnel assigned to the Work shall also be competent persons.
- .5 Inspections:
  - .1 Conduct regularly scheduled safety inspections of the Work on a minimum daily basis. Record deficiencies and remedial action taken.
  - .2 Conduct Formal Inspections on a minimum monthly basis. Use standardized safety inspection forms. Distribute to subcontractors.
  - .3 Follow-up and ensure corrective

measures are taken.

.6 Keep inspection reports and supervision related documentation on site.

1.15 TRAINING

.1 Use only skilled workers on Work Site who are effectively trained in occupational health and safety procedures and practices pertinent to their assigned task.

.2 Maintain employee records and evidence of training received. Make data available to Departmental Representative upon request.

.3 When unforeseen or peculiar safety-related hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

.4 All workers dealing with hazardous materials are required to provide evidence of training, in accordance with Provincial regulations.

1.16 MINIMUM SITE SAFETY RULES

.1 Notwithstanding requirement to abide by federal and provincial health and safety regulations; ensure the following minimum safety rules are obeyed by persons granted access to Work Site:

.1 Wear appropriate PPE pertinent to the Work or assigned task; minimum being hard hat, safety footwear, safety glasses safety vest and hearing protection.

.2 Immediately report unsafe condition at site, near-miss accident, injury and

damage.
.3 Maintain site and storage areas in a tidy condition free of hazards causing injury.
.4 Obey warning signs and safety tags.

.2 Brief persons of disciplinary protocols to be taken for non compliance. Post rules on site.

1.17 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

.2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Departmental Representative will stop Work if non-compliance of health and safety regulations is not corrected in a timely manner.

1.18 INCIDENT REPORTING

.1 Investigate and report the following incidents to Departmental Representative:
.1 Incidents requiring notification to Provincial Department of Occupational Safety and Health, Workers Compensation Board or to other regulatory Agency.
.2 Medical aid injuries.
.3 Property damage in excess of $10,000.00.

.2 Submit report in writing.

1.19 HAZARDOUS PRODUCTS

.1 Comply with requirements of Workplace Hazardous Materials Information System

WHMIS).

.2 Keep MSDS data sheets for all products delivered to site.
.1 Post on site.
.2 Submit copy to Departmental Representative.

1.20 SITE RECORDS

.1 Maintain on Work Site copy of safety related documentation and reports stipulated to be produced in compliance with Acts and Regulations of authorities having jurisdiction and of those documents specified herein.

.2 Upon request, make available to Departmental Representative or authorized Safety Officer for inspection.

1.21 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on Work Site in accordance with Acts and Regulations of Province having jurisdiction.

.2 Post other documents as specified herein, including:
.1 Site specific Health and Safety Plan.
.2 WHMIS data sheets.

1.1 RELATED WORK

.1 Section 02 41 16 – Sitework, Demolition and Removal.

1.2 DEFINITIONS

.1 Hazardous Material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.

1.3 FIRES

.1 No fires permitted on site. All materials designated for demolition are to be removed off the Island.

1.4 DISPOSAL OF WASTES AND HAZARDOUS MATERIALS

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of hazardous waste or volatile materials, such as mineral spirits, paints, thinners, oil or fuel into waterways, storm or sanitary sewers or waste landfill sites.

.3 Store, handle and dispose of hazardous materials and hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.

.4 Dispose of construction waste materials and demolition debris, resulting from work, at approved landfill sites only. Carryout such disposal in strict accordance with provincial and municipal rules and regulations. Separate out and prevent improper disposal of items banned from landfills.

.5 Establish methods and undertake construction practices which will minimize waste and optimize use of construction materials.

Separate at source all construction waste materials, demolition debris and product packaging and delivery containers into various waste categories in order to maximize recycling abilities of various materials and avoid disposal of debris at landfill site(s) in a "mixed state". Where recycling firms, specializing in recycling of specific materials exist, transport such materials to the recycling facility and avoid disposal at landfill sites.

.6 Communicate with landfill operator prior to commencement of work, to determine what specific construction, demolition and renovation waste materials have been banned from disposal at the landfill and at transfer stations.

1.5 DRAINAGE

.1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.

.2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with governing regulations and requirements.

.4 Pumped water must meet applicable federal, provincial, and municipal standards before it can be discharged to a surface water body. If regulatory guidelines exceedences are noted, the Departmental Representative has the right to issue stop pumping instructions to the Contractor. Contractor will not be compensated for any delays associated with retrofitting equipment to meet guidelines.

1.6 PERMITS

.1 All guidelines and instructions stated on permits must be strictly adhered to.

1.7 WORK ADJACENT TO WATERWAYS

.1 Do not operate construction equipment in waterways.

.2 Do not use waterway beds for borrow material.

.3 Do not dump excavated fill, waste material or debris in waterways.

.4 At borrow sites, design and construct temporary crossings to minimize erosion to waterways in strict conformance with provincial and federal environmental regulations.

.5 Do not skid logs or construction materials across waterways.

.6 Ensure refueling of any type of equipment does not, either directly or indirectly, create pollution by causing or permitting any leaks or spills.

.7 Maintain equipment in good working condition with no fluid leaks, loose hoses or fittings.

1.8 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this contract.

.2 Control emissions from equipment and plant to local authorities emission requirements.

.3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

.4 Have emergency spill response equipment and rapid clean-up kit, appropriate to work, at

site. Locate adjacent to work and where hazardous materials are stored. Provide personal protective equipment as required for clean-up.

.5 Report, to Federal and Provincial Department of the Environment, spills of petroleum and other hazardous materials as well as accidents having potential of polluting the environment. Also notify Departmental Representative and submit a written spill report to Departmental Representative within 24 hours of occurrence.

1.9 WILDLIFE PROTECTION

.1 Refer to the Projects Effects Determination document as it relates to sensitive wildlife in this area.

1.1 SANITARY FACILITIES

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.2 WATER SUPPLY

.1 Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances.

1.3 SCAFFOLDING

.1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance with CSA797-09.

.2 Erect scaffolding independent of walls. Remove when no longer required.

1.4 CONSTRUCTION SIGN AND NOTICES

.1 Contractor or subcontractor advertisement signboards are not permitted on site.

.2 Only notices of safety or instructions are permitted on site.

.3 Safety and Instruction Signs and Notices:
.1 Signs and notices for safety and instruction shall be in both official languages.

.4 Maintenance and Disposal of Site Signs:
.1 Maintain approved signs and notices in good condition for duration of project and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.5 REMOVAL OF TEMPORARY FACILITIES

.1 Remove temporary facilities from site when directed by Departmental Representative.

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Barriers.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 HOARDING

.1 Erect temporary site enclosure if required by governing authorities, using new 1.2 m high snow fence wired to rolled steel "T" bar fence posts spaced at 2.4 m centres. Provide one lockable truck gate. Maintain fence in good repair.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around open excavations and as required to protect against falls. Note steep cliffs around work area and construct barricades where work is expected in these areas.

.2 Provide as required by governing authorities.

PART 1 - GENERAL

1.1 GENERAL

.1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

.2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.3 Prevent accumulation of wastes which create hazardous conditions.

.4 Provide adequate ventilation during use of volatile or noxious substances.

1.2 CLEANING DURING CONSTRUCTION

.1 Maintain project grounds and public properties in a tidy condition, free from accumulations of waste material and debris. Clean areas on a daily basis.

.2 Provide on-site garbage containers for collection of waste materials and debris.

.3 Remove waste materials and debris from site on a daily basis.

1.3 FINAL CLEANING

.1 In preparation for acceptance of the Work perform final cleaning. The expectation for final cleaning will be a rake cleaning, removing all debris, wood chips, nails, paint chips, etc.

1.1 SECTION INCLUDES

.1 Project Record Documents as follows:
.1 Inventory of all materials removed off-site with weigh bill slips from the waste disposal site, hazardous waste disposal site and recycling facilities, where applicable.

1.2 PROJECT RECORD DOCUMENTS

.1 Departmental Representative will provide two white print sets of contract drawings and two copies of Specifications.

.2 Maintain at site one set of the contract drawings and specifications to record actual “As-Built” site conditions.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies requirements for demolishing and removing wholly or in part various items designated to be removed or partially removed.

.2 Demolition and removal will consist of, but not necessarily be limited to, the following:

.1 Demolition, removal and disposal of the double dwelling. Note that the concrete foundation, including above grade concrete foundation walls associated with the dwelling can remain. Contractor to be prepared to core 150mm diameter core holes in the cistern to prevent future water ponding (see drawings). For Bidding, assume that 12 core holes through 200mm thick reinforced concrete will be required. The Departmental Representative will provide direction related to the core holes (including specific locations), while in the field.

.2 Demolition, removal and disposal of the old equipment building, upper and lower winch houses, landings, access stairs, stairways, tramway and hoists as noted on the drawings. Note that the infrastructure to be removed contains treated timber.

.3 For all concrete foundations to remain, remove flaking/peeling paint down to the bare concrete and dispose of paint chips as hazardous lead waste. This includes exterior foundation walls, interior floor slabs and basement slabs.

.4 All materials present on the interior of the Dwelling, Winch houses

and Old Equipment Building are to be removed/disposed – refer to pictures in appended environmental report showing typical materials inside the buildings

Refer to Section 15 49 10 for specific requirements related to demolition, removal and disposal of hazardous building materials.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.1 EXECUTION

.1 Inspect site and verify with Departmental Representative objects designated for removal.

.2 Locate and protect utility lines. Preserve in operating condition active utilities traversing site.

3.2 REMOVAL

.1 Remove in their entirety all materials and objects specified for removal.

.2 Do not disturb adjacent work designated to remain in place.

3.3 DISPOSAL OF MATERIAL

.1 All demolished materials will become property of contractor and will be removed from site and disposed of to satisfaction of Departmental Representative and in accordance with environmental guidelines. It is the sole responsibility of the contractor to dispose of all demolished materials at an approved disposal site. Ensure that disposal

site is approved and willing to accommodate any materials disposed of from work site.

.2 Contractor shall obtain and pay for all necessary permits and disposal fees for use of an approved waste disposal site.

3.4 RESTORATION

.1 Upon completion of work, remove debris, trim surfaces and leave work site in clean condition.

.2 Reinstate areas and existing works outside areas of demolition to conditions that existed prior to commencement of work.

3.5 HELICOPTER USE

.1 All debris removed if utilized by helicopter shall be properly prepared for slinging. All air lifts of material and equipment shall be with the use of slinging nets complete with inner liner which has been attached to the slinging nets. All nets being used must be transport approved for helicopter slinging operations. All staff must be trained in Helicopter slinging operations. The flight path shall avoid over salmon rivers if possible. The refueling of helicopters must be completed at approved locations and never near a water body. All helicopter costs are the responsibility of the Contractor.

PART 1 - GENERAL

1.1 SCOPE

.1 This specification identifies the hazardous materials that are present in the infrastructure to be removed, and the measures required for handling and disposal of the materials. Removal and disposal of the hazardous building materials are the sole responsibility of the Contractor. The Contractor is responsible for determining an approved waste site and paying all associated permitting, dumping and disposal fees.

.2 A Hazardous Buildings Materials Assessment for the Site is appended to these specifications.

1.2 GENERAL

.1 Refer to the hazardous material sampling report (appended to the specifications), for quantities of known or suspected hazardous building materials. For the purposes of this contract, the following hazardous materials are to be removed and disposed of as part of the demolition activities:

- Drywall including joint compound on the interior walls and ceilings contains asbestos and is to be disposed of in accordance with the NL Asbestos Abatement Regulations. Roofing shingles, underlying tar material, mastic material at roofing penetrations and vinyl flooring on the interior is also to be considered asbestos. Contractors to provide evidence that they are registered with Service NL as an asbestos abatement contractor.
- Leachable lead based paint is present on all interior and exterior surfaces. Leachable lead based paint is considered hazardous for the purposes of transportation and disposal. Loose, flaking paint from surfaces is to be

drummed-up and disposed of as hazardous waste. Where paint is not flaking/peeling from construction materials, the material can be disposed of at one of the Regional Solid Waste Disposal sites, such as Robin Hood Bay. With respect to the exterior wood siding, the paint and substrate (i.e. siding with the paint adhered to it), is to be considered hazardous lead waste. With respect to concrete foundations and floor slabs which are to remain, the paint is to be removed from the concrete surfaces and disposed of as hazardous lead waste.

- Mould is present throughout the interior surfaces of the infrastructure. Workers to don PPE when working on the building interior.
- Water pipes potentially contain lead solder and are to be disposed of at a metal recycling facility.
- Spray foam sealant around the windows (yellow spray type) and all pink rigid foam insulation to be disposed of at a waste facility capable of accepting ozone depleting substances.
- Small amounts of ash in the chimney to be disposed of at one of the Regional Solid Waste Disposal sites, such as Robin Hood Bay.
- Smoke alarms potentially containing radioactive materials, to be transported as dangerous goods and disposed of at a licensed disposal facility.
- Fire extinguishers are considered household hazardous waste and are to be disposed of at a hazardous waste treatment facility.
- In the absence of sampling, all treated timber (creosote and CCA timber) is to be disposed of as hazardous waste. The Departmental Representative will permit disposal of treated timber at one of the Regional Solid Waste Disposal sites, such as Robin Hood Bay, if the Contractor chooses to sample the wood for leachability (at the Contractors cost) and the results are within the applicable

leachability guidelines for creosote and metals compounds.

1.3 PROTECTIVE EQUIPMENT/PROCEDURES

.1 Protective equipment and clothing to be worn by workers and visitors in work area include as a minimum:

.1 Respirator - NIOSH approved and equipped with replaceable P100 HEPA filter cartridges, acceptable to NL Labour Relations and NL OSHA. Respirator must be suitable for the type and level of lead dust and mould spore exposure in the work area. Provide sufficient filters so workers can install new filters following disposal of used filters and before re-entering contaminated areas. Workers must not have facial hair that affects the seal between the respirator and face.
.2 Gloves and eye protection.
.3 Disposable protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.
.4 Remove gross contamination from clothing before leaving work area. Place contaminated work suits in receptacles for disposal with other lead/mould contaminated materials. Upon completion of lead/mould abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area.
.5 Eating, drinking, chewing and smoking must not be permitted in the work area. Workers must wash hands and face when leaving the work area.
.6 Workers must be trained in hazards of lead/mercury and mould exposure, personal hygiene, work procedures and the proper use of respirators. Provide proof to Departmental

Representative prior to work.

1.4 SUBMITTALS

.1 Before commencing work obtain from the appropriate agency and submit to Departmental Representative all necessary permits for transportation and disposal of hazardous waste (including asbestos waste). Ensure that waste disposal operator is fully aware of hazardous nature of material being dumped, and proper methods of disposal. Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to receive and properly dispose of hazardous waste.

.2 Submit proof satisfactory to Departmental Representative that all employees have had instruction on all hazardous material exposure, respirator use, dress, entry and exit from work areas, and all aspects of work procedures and protective measures.

.3 Submit proof satisfactory to the Departmental Representative that all employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with the respirator that is personally issued.

.4 Submit Workplace Health, Safety and Compensation Commission status and transcription of insurance.

.5 Use procedures and equipment required to limit occupational and environmental exposure to lead when lead- containing paint is removed.

1.5 LEAD PAINT DISPOSAL

.1 Disposal of lead waste must comply with Federal and Provincial regulations. Dispose of leachable lead waste in UN certified

containers. Label containers with appropriate warning labels. Disposal of containers is to be at a certified treatment/disposal facility such as STABLEX.

1.6 INSURANCE

.1 Provide proof of Contractor’s General and Environmental Liability Insurance, specific to cover the hazardous materials known to exist on this site.

Appendix A: Hazardous Buildings Material Survey

-FINAL REPORT-

DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT AND INVENTORY BACCALIEU ISLAND LIGHTSTATION BACCALIEU ISLAND, NEWFOUNDLAND AND LABRADOR DFRP 80521

Submitted to:

Public Works and Government Services Canada
Environmental Services
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March 2015

Amec Foster Wheeler Project No. TF14076579

IMPORTANT NOTICE

This report was prepared exclusively for Public Works and Government Services Canada (PWGSC) and Fisheries and Oceans Canada (DFO) by Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler). The quality of information, conclusions and estimates contained herein is consistent with the level of effort involved in Amec Foster Wheeler's services and based on: i) information available at the time of preparation, ii) data supplied by outside sources and iii) the assumptions, conditions and qualifications set forth in this report. This report is for use by PWGSC and DFO only, subject to the terms and conditions of its contract with Amec Foster Wheeler. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

SECTION 1.0 EXECUTIVE SUMMARY

Amec Foster Wheeler Environment & Infrastructure, a division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), was retained by Public Works and Government Services Canada (PWGSC), on behalf of Fisheries and Oceans Canada (DFO), to conduct a Hazardous Building Materials Assessment (HBMA) for the structures slated for demolition at the Baccalieu Island Lightstation located on the southwest point of Baccalieu Island, Newfoundland and Labrador (NL), herein referred to as the "Site". The demolition HBMA was requested to provide PWGSC and DFO with an evaluation of known and potential hazardous building materials for the structures at the Site that are slated for demolition.

The Site is a DFO Lightstation located at the southwestern tip of Baccalieu Island, which is located off the northern most tip of the Avalon Peninsula, NL. The nearest community, Bay de Verde, is located approximately 6.5 kilometers (km) southwest of Baccalieu Island. The lightstation was first established in 1858 and was manned until 2002, when it was automated. The Site is accessible by boat or helicopter. The Site is currently used as an active Lightstation but is not staffed by DFO on a fulltime basis; DFO employees visit the Site on a regular basis for inspections and maintenance.

Existing infrastructure at the Site consists of a double dwelling, a new equipment building, an old equipment building, various solar panels, a fog horn, a helicopter landing pad, a new light tower, various wooden walkways/stairways, two (2) boat landings with two (2) winch houses, a winch and a spar, and a concrete pad that was formerly used for fuel storage. Other structures no longer present at the Site include a winch house, a winch and a spar and two (2) booms.

The objective of the current demolition HBMA and inventory was to identify the type and location of potential and confirmed hazardous building materials within the Site buildings.

For reporting purposes, the findings for the Site buildings and Site exterior are divided into separate sections within the report as follows:

Section	Report Outline
1.0	Introduction
2.0	Double Dwelling
3.0	Old Equipment Building
4.0	Upper Winch House
5.0	Lower Winch House
6.0	Site Exterior
7.0	Closure and Limitations

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APPENDICES

1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, a division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), was retained by Public Works and Government Services Canada (PWGSC), on behalf of Fisheries and Oceans Canada (DFO), to conduct a Hazardous Building Materials Assessment (HBMA) for the structures slated for demolition at the Baccalieu Island Lightstation located on the southwest point of Baccalieu Island, Newfoundland and Labrador (NL), herein referred to as the "Site" (refer to Figures 1.1 and 1.2, Appendix A1 and Photos 1 to 6, Appendix B1). In addition to the demolition HBMA, an inventory of all items within the structures and around the Site was also required. The demolition HBMA was requested to provide PWGSC and DFO with an evaluation of known and potential hazardous building materials for the structures at the Site that are slated for demolition.

1.1 SITE DESCRIPTION

The Site is a DFO Lightstation located at the southwestern tip of Baccalieu Island, which is located off the northern most tip of the Avalon Peninsula, NL (refer to Figure 1.1, Appendix A1). The nearest community, Bay de Verde, is located approximately 6.5 kilometers (km) southwest of Baccalieu Island. The lightstation was first established in 1858 and was manned until 2002, when it was automated. The Site is accessible by boat or helicopter. The Site is currently used as an active Lightstation but is not staffed by DFO on a fulltime basis; DFO employees visit the Site on a regular basis for inspections and maintenance.

Existing infrastructure at the Site consists of a double dwelling, including a septic system, a new equipment building, an old equipment building, various solar panels, a fog horn, a helicopter landing pad, a new light tower, various wooden walkways/stairways, two (2) boat landings with two (2) winch houses, a winch and a spar, and a concrete pad that was formerly used for fuel storage (refer to Figure 1.2, Appendix A1 and Photos 2 and 3, Appendix B1). The fuel tanks, which consisted of three (3) double-walled, steel tanks (8,819 litre (L) storage capacity), have been removed from the Site; although, the concrete pad on which the tanks rested still exists near the helicopter landing pad (refer to Photos 4 and 5, Appendix B1). Other structures no longer present at the Site include a winch house, formerly located on the south side of the double dwelling, a winch and a spar and boom, formerly located at the upper landing, and a boom, formerly located at the lower landing (refer to Figure 1.2, Appendix A1 and Photos 4 and 6, Appendix B1).

1.2 REPORT STRUCTURE

For reporting purposes, the findings for the Site buildings and Site exterior are divided into separate sections within the report as follows:

- Section 1.0: Introduction
- Section 2.0: Double Dwelling
- Section 3.0: Old Equipment Building

- Section 4.0: Upper Winch House
- Section 5.0: Lower Winch House
- Section 6.0: Site Exterior
- Section 7.0: Closure and Limitations

1.3 OBJECTIVES

The objective of the demolition HBMA and inventory was to identify the type and location of potential and confirmed hazardous building materials within the Site buildings.

1.3.1 Scope of Work

The scope of work for the demolition HBMA and inventory, as per Amec Foster Wheeler Proposal Number P4400 (*Proposal for Professional Consulting Services, Demolition Hazardous Building Materials Assessment and Inventory, Baccalieu Island Lightstation (DFRP 80521), Baccalieu Island, NL*), included:

- Conducting a visual inspection of the Site and completing a detailed inventory to document all items within the structures and around the Site.
- Collecting detailed photographs and videos of structures and inventory items at the Site.
- Identifying any known hazards (i.e. dilapidated walkways or wharf structures; locations of suspected visible mould growth, etc.) observed at the Site and reporting these hazards to PWGSC upon completion of the Site visit.
- Obtaining access to any secured Site buildings and/or structures at the Site.
- Inspecting potentially hazardous building materials at the Site buildings and/or structures at the Site (i.e., asbestos-containing materials (ACMs), lead-based paint (LBP), mercury-based paint (MBP), polychlorinated biphenyl (PCB)-based paint, creosote treated wood, urea formaldehyde foam insulation (UFFI), ozone depleting substances (ODSs), etc.).
- Documenting the location of any ODSs, Federal Halocarbons and petroleum storage tanks identified during the assessment.
- Performing intrusive cavity inspections to attempt to identify any hidden and potentially hazardous building materials that may be concealed by walls and/or ceiling systems.
- Sampling and laboratory testing of suspected hazardous materials (i.e., ACMs, LBP, MBP, PCB-based paint, PCB-containing caulking, creosote treated wood, UFFI, etc.).
- Inspecting all thermostats to assess the presence/absence of mercury-containing switches.
- Inspecting all accessible fluorescent lights (if present) for PCB-containing light ballasts.

- Prior to leaving the Site, repairing and/or securing any entry points used during the Site assessment to access the Site buildings and/or structures at the Site.
- Preparing a written report documenting the methodologies and findings of the demolition HBMA.

Buildings/structures that were to be assessed as part of the demolition HBMA included:

- Double Dwelling
- Upper Winch House
- Lower Winch House (including Winch and Spar)
- Equipment Building (Old)
- Timber Landing Deck (Upper)
- Timber Landing Deck (Lower)
- Various Timber Stairways/Walkways
- Wood Fencing

The following structures were either not slated for demolition or were no longer present at the Site and were therefore not included in this assessment:

- Winch House (next to Double Dwelling)
- Winch, Spar and Boom at Timber Landing Deck (Upper)
- Boom at Timber Landing Deck (Lower)
- Helicopter Landing Pad
- Equipment Building (New)
- Solar Arrays
- Fog Alarm
- Light Tower (New)

The findings of the investigation were based on the interpretation of data from the areas investigated and analytical results pertaining to specific samples collected and tested. It is possible that materials exist that could not be reasonably identified within the scope of the work or which were not apparent or accessible during the Site visit.

1.4 ENVIRONMENTAL REGULATORY FRAMEWORK

The federal and provincial governments in Canada have prepared and/or adopted numerous acts (and amendments), regulations (and amendments), guidelines, policies, and procedures related to the protection of the environment and the investigation of sites containing hazardous building materials including the following:

- Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines (CEQG)
    - Canadian Soil Quality Guidelines (CSQG) for the Protection of Environmental and Human Health
- CCME Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products
- Canadian Environmental Protection Act (1999, C. 33)
    - PCB Waste Export Regulations (SOR/97-109)
    - PCB Regulations (SOR/2008-273)
    - Regulations Amending the PCB Regulations (SOR/2010-57)
    - Interprovincial Movement of Hazardous Waste Regulations (SOR/2002-301)
    - Federal Halocarbon Regulations (SOR/2003-289)
    - Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149)
    - Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197)
- Federal Hazardous Products Act (R.S., 1985, c. H-3)
    - Surface Coating Materials Regulations (SOR/2005-109)
    - Regulations Amending the Surface Coating Materials Regulations (SOR/2010-224)
- Federal Transportation of Dangerous Goods Act (1992, c. 34)
    - Transportation of Dangerous Goods Regulations (SOR/2012-245)
- Health Canada Guidelines for Canadian Drinking Water Quality (Summary Table, 2012)
- National Plumbing Code of Canada (National Research Council Canada)
- NL Environmental Protection Act (SNL2002 cE-14.2)
    - Storage of PCB Wastes Regulations (61/03)
    - Halocarbon Regulations (41/05)
- NL Dangerous Goods Transportation Act (RSNL1990 Chapter D-1)
    - Dangerous Goods Transportation Regulations (5/96)

- NL Department of Environment, Pollution Prevention Division, Guidance Document: Leachable Toxic Waste, Testing and Disposal (2003, GD-PPD-26.1)
- NL Department of Environment and Conservation, Guidance Document for the Management of Impacted Sites (2005, Version 1.01)
- NL Department of Environment and Conservation, Pollution Prevention Division, Guidance Document: Treated Wood Waste Disposal (2014, GD-PPD-075)
- NL Occupational Health and Safety Act (RSNL1990 Chapter O-3)
    - Occupational Health and Safety Regulations (5/12)
    - Asbestos Abatement Regulations (111/98)

Amec Foster Wheeler has considered the above documents in conducting this HBMA.

1.4.1 Selection of Guidelines/Standards

Based on the past and projected future Site use activities, the Site is considered to be zoned commercial. The following sections present the guidelines and standards that were used to evaluate analytical results for samples of suspected hazardous materials collected during this assessment.

1.4.1.1 Asbestos-Containing Materials (ACMs)

Analytical results for asbestos in building materials were compared to the NL Asbestos Abatement Regulations (111/98) under the Occupational Health and Safety Act. Under these regulations, materials containing greater than 1% asbestos by dry weight are considered to be ACMs and should be managed in accordance with the applicable regulations.

1.4.1.2 Lead in Paint

Analytical results for lead in paint were compared to the current and former Federal Hazardous Products Act (HPA) criteria of 90 mg/kg and 5,000 mg/kg, respectively. Under the HPA, the lead content limit was reduced from 5,000 mg/kg to 600 mg/kg in 2005 for surface coating materials used in or around the home or other premises where children may become exposed. In 2010, the lead content limit was further reduced from 600 mg/kg to 90 mg/kg.

In order to determine disposal options, the former Federal HPA criterion of 5,000 mg/kg lead in paint is typically used as a Provincial disposal guideline to determine whether or not the paint chip samples would be submitted for leachate analysis. Paint chip samples that contain less than 5,000 mg/kg are not likely to be leachable and therefore may be disposed of at an approved landfill facility, pending landfill and Provincial regulatory approval. Paint samples with lead concentrations in excess of 5,000 mg/kg should be subjected to leachability testing. The NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1) guideline of 5.00 mg/L lead should be used to assess the results

of the leachability testing to determine disposal options for any lead-containing paint to be removed during any demolition activities at the Site.

1.4.1.3 Mercury in Paint

Analytical results for mercury in paint were compared to the Federal HPA criterion. The maximum acceptable concentration of mercury in paint, under the HPA, is 0.001 percent (equivalent to 10 mg/kg) in or around the home or other premises where children or pregnant women may become exposed.

In order to determine disposal options, concentrations of mercury in paint were also compared to the CCME CSQG for mercury in soil at an industrial site (50 mg/kg). The CCME CSGQ for mercury in soil is typically used as a Provincial disposal guideline to determine whether or not the paint chip samples would be submitted for leachate analysis. Paint samples with a mercury concentration of less than 50 mg/kg are not likely to be leachable and therefore may be disposed of at an approved landfill facility, pending landfill and Provincial regulatory approval. Paint samples with a mercury concentration exceeding 50 mg/kg should be subjected to leachability testing. The NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1) guideline of 0.10 mg/L mercury should be used to assess the results of the leachability testing to determine disposal options for any mercury-containing paint to be removed during any demolition activities at the Site.

1.4.1.4 PCBs in Paint and Caulking

Analytical results for PCBs in paint and caulking were compared to the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site. The Federal HPA does not include any assessment criteria for PCBs in paint.

In order to determine disposal options, concentrations of PCBs in paint and caulking were also compared to the criterion for PCB solid (50 mg/kg) provided in the Provincial Guidance Document for Leachable Toxic Waste (GD-PPD-26.1) and the Federal Transportation of Dangerous Goods (TDG) Regulations.

1.4.1.5 Treated Wood Chemicals

In order to determine disposal options, depending on the type of chemical treatment applied, treated wood samples should be subjected to leachability testing. The NL Department of Environment, 2014 Guidance Document for Treated Wood Waste Disposal (GD-PPD-075) provide landfill disposal standards for “pressure treated” inorganic preservatives (i.e. arsenic and chromium) and creosote (i.e. total cresol and benzo(a)pyrene) and chlorophenolic (i.e. pentachlorophenol) formulations used to preserve wood. These landfill disposal standards for treated wood waste (TWW) should be used to assess the results of leachability testing to determine disposal options for any treated wood to be removed during any demolition activities at the Site.

1.4.1.6 Mould

There are currently no regulations specifically covering exposure to mould and/or mould remediation practices in Canada. In addition, there are no occupational exposure limits that define acceptable levels of mould exposure without adverse health effects. However, Sections 4 and 42 of the NL Occupational Health and Safety Act and Regulations, respectively, states that an employer shall ensure, where it is reasonably practicable, the health, safety and welfare of his or her workers and that an employer shall monitor the use or presence of substances at the workplace that may be hazardous to the health and safety of workers. This includes exposure to moulds and other biological matter. Two Canadian guidelines have been published that outline mould abatement. These documents were published by the Canadian Construction Association (CCA) and the Environmental Abatement Council of Ontario (EACO). Since there are no clear regulatory limits for determining an acceptable exposure limit to moulds, there is no numerical guideline for determining safe or unsafe concentrations of surface mould growth. Therefore, interpretation of sampling results is subjective. The guidelines listed below were used to evaluate the visual assessment and sampling results for mould:

- *"Mould Guidelines for the Canadian Construction Industry."* Canadian Construction Association, 2004.
- *"Mould Abatement Guidelines."* Environmental Abatement Council of Ontario, 2010.

1.5 METHODOLOGY

The Site inspection and sampling for the investigation were conducted by Amec Foster Wheeler personnel on December 16 and 17, 2014.

1.5.1 Bulk Material Sampling and Laboratory Analytical Program

Building materials suspected of containing asbestos and/or PCBs were sampled by removing a 2.0 cm by 2.0 cm piece of material (where possible) and placing the sampled materials into Glad® or Ziploc® plastic bags. Building materials suspected of containing wood preservatives were sampled by removing a 2.5 cm thick piece of material (where possible) from suspect treated timber and placing it into Glad® or Ziploc® plastic bags.

Bulk material samples suspected of containing asbestos were submitted to the EMSL Canada Inc. (EMSL) laboratory located in Mississauga, Ontario (ON) for the analysis of asbestos using Polarized Light Microscopy (PLM) with dispersion staining. The analysis was conducted in accordance with the United States Environmental Protection Agency (USEPA) Method EPA 600/R-93/116 (Method for the Determination of Asbestos in Bulk Building Materials). EMSL is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) and the American Industrial Hygiene Association (AIHA) for bulk asbestos fibre analysis by PLM.

Bulk material samples suspected of containing PCBs (i.e. caulking) were submitted to the Maxxam Analytics Inc. (Maxxam) laboratory located in Bedford, Nova Scotia (NS) for the analysis of PCB content. The analysis for PCBs was conducted using gas chromatographic analysis with an electron capture detector (GC-ECD). Maxxam conducted the analysis in accordance with an in-house method, as there is currently no recognized reference method for PCBs in bulk materials.

Bulk material samples suspected of containing wood preservatives (i.e. creosote) were submitted to the Maxxam laboratory located in Bedford, NS for TCLP analysis of cresols and benzo(a)pyrene.

1.5.2 Paint Sampling and Laboratory Analytical Program

Paint samples were collected from painted surfaces by cutting and scraping areas of flaking paint using clean knives and scrapers. Samples were collected down to bare substrate (e.g., drywall, concrete and wood). A minimum of five grams (where possible) of paint was obtained from each sampling location and stored in Glad® or Ziploc® plastic bags.

Paint samples were submitted to the Maxxam laboratory located in Bedford, NS for the analysis of lead, mercury and PCB content. The lead and mercury analysis was conducted in accordance with the EPA 6020A, method analysis for metals using inductively coupled plasma – mass spectrometry (ICP-MS). Based on the findings of the analytical program, paint samples were analyzed for lead and/or mercury leachate using the Toxicity Characteristic Leaching Procedure (TCLP), as required. Maxxam is accredited under the Standards Council of Canada (SCC) to perform analysis of lead and mercury in paint samples. The analysis for PCBs was conducted using GC-ECD. Maxxam conducted the analysis in accordance with an in-house method, as there is currently no recognized reference method for PCBs in paint.

1.5.3 Inspection for Urea Formaldehyde Foam Insulation (UFFI)

According to the USEPA and the US Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), formaldehyde is a colourless, pungent-smelling gas that is commonly used in some manufactured building materials and household products such as particleboard, medium density fibreboard, fibreglass, plywood, carpets, fabrics, urea-formaldehyde resins, paints, paper, fertilizer, food preservatives, antiseptics, medicines and cosmetics. These agencies also state, that as a by-product of combustion, formaldehyde may also be released to indoor air environments by means of un-vented wood and fuel-burning appliances and tobacco smoke. According to the Canada Mortgage and Housing Corporation (CMHC), new carpets and composite wood products used in the present-day construction of buildings have the potential to increase the levels of formaldehyde in indoor air and are deemed to be the most likely sources of high formaldehyde levels in these newer and well-sealed buildings.

UFFI is a thermal insulation material that is pumped into interstitial spaces between the walls of buildings where it hardens to form a solid layer of insulation. UFFI is comprised of a cured mixture of urea-formaldehyde resin and compressed air. The sale and installation of UFFI was banned for health-related reasons in 1980 because of the formation of formaldehyde gas which is released from the UFFI to the building interior.

The focus of the visual inspection included searching for visible signs of UFFI (e.g. a series of small patched holes at regular intervals on exterior or interior walls; foam around electrical outlets or switch plates). Intrusive cavity inspections were also performed in select areas of the Site buildings to investigate the presence or absence of UFFI.

1.5.4 Inspection for Suspected Visible Mould Growth (SVG)

Mould spores are present in all indoor environments and cannot be completely eliminated. Cellulose based building materials provide a nutrient base for many mould species; however, mould cannot grow unless an adequate amount of excess moisture is present.

The focus of the visual inspection included, but was not limited to, searching for visible signs of water staining, water damage, excess moisture, and/or infiltration; and signs of SVG and/or staining. In this report, the term SVG refers to a smearable discoloration of surfaces differing from that of the natural substrate with observable fungal characteristics based on our experience evaluating similar building types. Bulk material samples were collected from areas of SVG to confirm the presence of mould growth.

Mould samples were collected by removing a 2.0 cm by 2.0 cm piece of material (where possible) from the area of SVG. The samples were stored in Glad® or Ziploc® plastic bags and labeled.

Suspected mould samples were submitted to EMC Scientific (EMC) laboratory located in Mississauga, ON for direct microscopic examination (DME) of mould to the genus level. EMC is an AIHA Environmental Microbiology Proficiency Analytical Testing (EMPAT) program participant.

1.5.5 Inspection of Thermostats for Mercury-Containing Switches

Thermostats identified within the Site buildings were visually inspected by removing the casings and checking for the presence of mercury-containing switches.

1.5.6 Inspection of Light Ballasts for PCBs

Light ballasts within accessible fluorescent light fixtures identified within the Site buildings were visually inspected for the presence or absence of PCB-containing dielectric fluid and condition by removing the light tubes and casings in the fixtures. The name of the manufacturer and manufacturer's code were recorded (where possible) and compared to Environment Canada's

Environmental Protection Series Report (EPS 2/CC/2, August 1991). The ballasts are classified as either non-PCB or potential-PCB.

1.5.7 Documentation of Potential Sources of ODSs and Halocarbons

Ozone depleting substances (ODSs) include any substances containing chlorofluorocarbon (CFC), hydrochlorofluorocarbon (HCFC), halon or any other material capable of destroying ozone in the atmosphere. ODSs have been used in rigid polyurethane foam and insulation, laminates, aerosols, air conditioners, freezers, chillers, fire extinguishers, cleaning solvents and for the sterilization of medical equipment. Federal regulations introduced in 1995 required the elimination of production and import of CFCs by January 1, 1996 (subject to certain essential uses) and a freeze on the production and import of HCFC-22 by January 1, 1996. These regulations also require the complete elimination of HCFC-22 by the year 2020. The NL Halocarbon Regulations (dated May 2005) required the elimination of halon in portable fire extinguishers effective June 1, 2005 and the elimination of halon in fire extinguishing systems by January 1, 2010.

Potential sources of ODSs identified within the Site buildings (if present) were documented during the Site investigation.

1.5.8 Documentation of On-Site Petroleum Storage Tanks

Petroleum storage tanks identified at the Site (if present) were documented during the Site investigation.

1.5.9 Documentation of Other Potentially Hazardous Building Materials

Other potentially hazardous building materials (e.g. mercury in lighting devices, lead in plumbing and/or batteries, silica in cementitious building materials, contaminants in chimney ash, etc.) identified at the Site (if present) were documented during the Site investigation.

1.5.10 Quality Assurance/Quality Control (QA/QC) Program

Laboratory blanks and duplicates and Quality Control (QC) standard samples were analyzed to assess the reliability of the paint and caulking analyses. In order to minimize cross contamination during sampling, a field Quality Assurance/Quality Control (QA/QC) program was followed, which included the following measures:

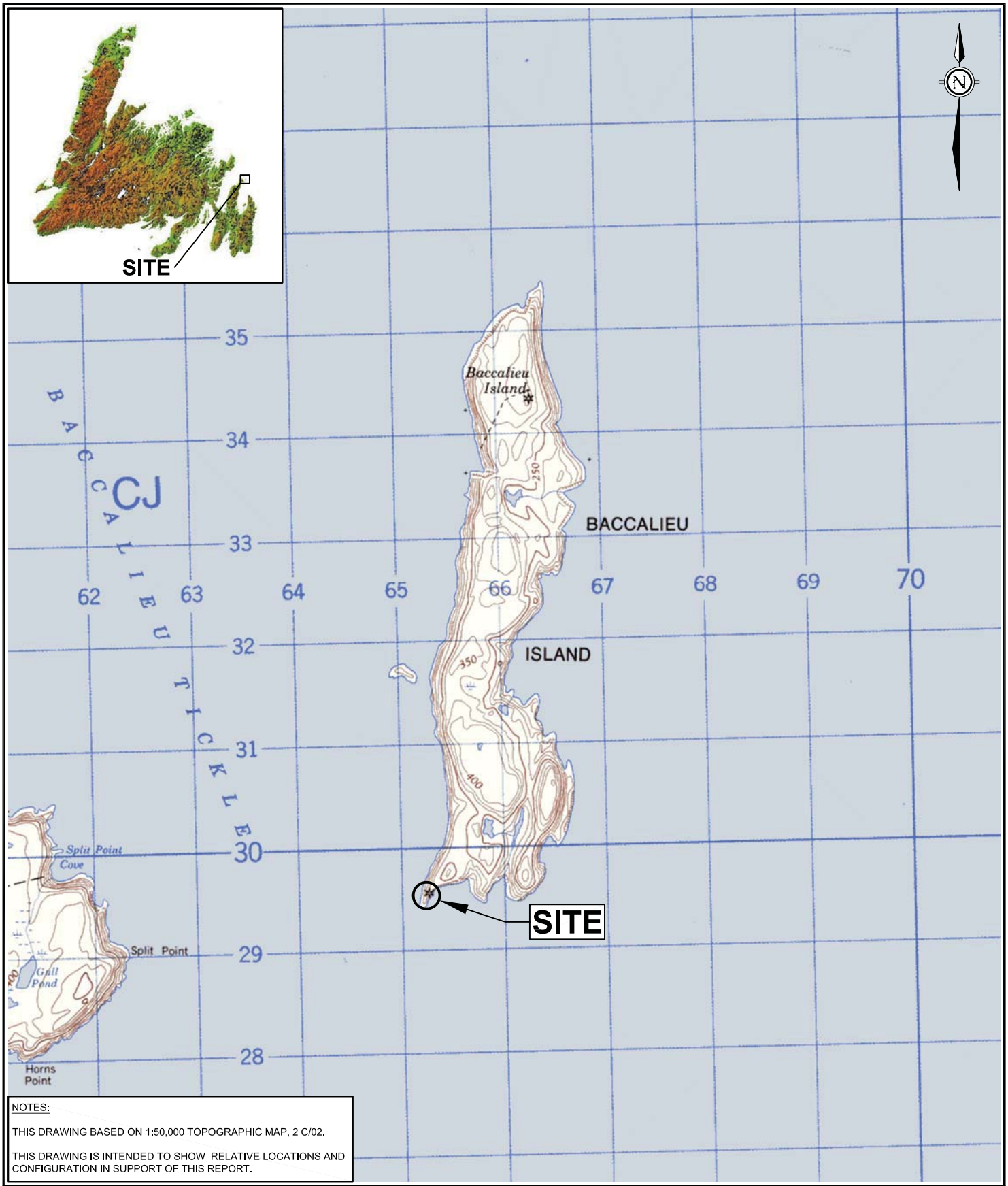
- Latex or nitrile gloves were worn during all sampling (new pair of gloves for each sample);
- All sampling equipment was thoroughly cleaned prior to sampling to ensure that samples were unaffected by cross-contamination from previous samples; and
- Each sample was photographed, given a unique sample ID and logged onto a chain of custody form before shipment to the laboratory.

The laboratories utilized have extensive QA/QC programs in place to ensure that reliable results are consistently obtained. Specific laboratory QA/QC measures include:

- Chain of Custody and sample integrity inspection;
- Strict documentation control and files;
- Trained personnel prepare and analyze samples according to Standard Operating Procedures;
- All analytical methods are based on accepted procedures and are fully validated prior to use;
- Precision is monitored by performing replicate analysis of samples;
- Accuracy is verified by analyzing spiked samples and reference materials;
- Instrument calibration integrity is ensured by analyzing calibration check standards within each run sequence;
- Extensive use is made of reference material for routine procedure evaluation;
- Highest available purity analytical standards;
- Predefined analytical sequences ensure all results are traceable to calibration and QC data;
- Hard copy reports displaying all of the required data are generated for each instrument;
- Analytical results are determined only from instrument responses that fall within the calibration range;
- Acceptable QC performance must be demonstrated prior to data authorization;
- On-going method and instrument performance records are maintained for all analysis; and,
- A full-time QA Scientist evaluates the QA program on an on-going basis.

APPENDIX A1

FIGURES



NOTES:

THIS DRAWING BASED ON 1:50,000 TOPOGRAPHIC MAP, 2 C/02.

THIS DRAWING IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION IN SUPPORT OF THIS REPORT.

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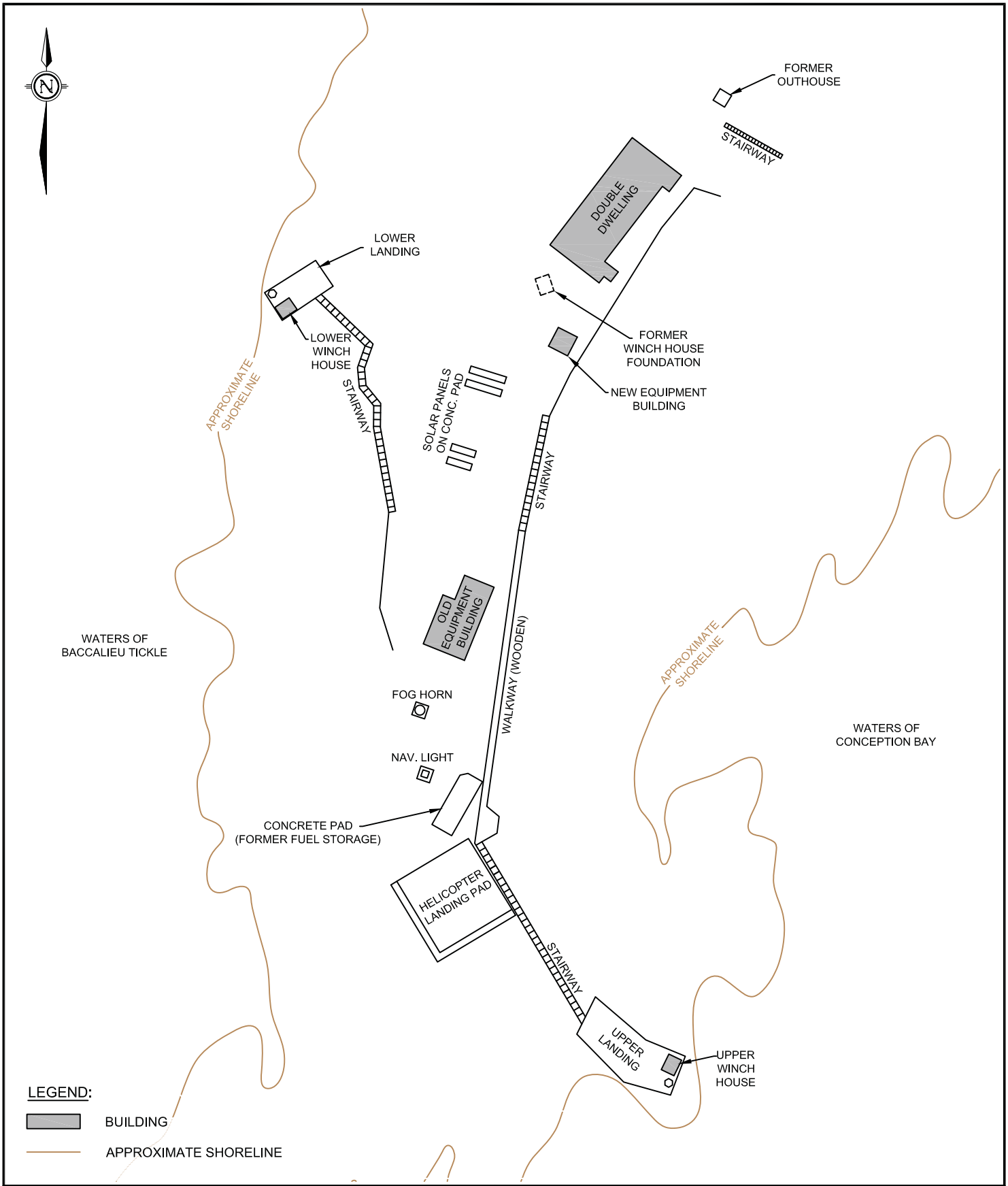
Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

Date: February 2015	Project: DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT AND INVENTORY, BACCALIEU ISLAND LIGHTSTATION (DFRP 80521), BACCALIEU ISLAND, NL		
Drawn by: A. Hollett	Title: SITE LOCATION PLAN		
Approved by: L. Wiseman	Scale: 1:50,000	Project No.: TF14076579	Figure No.: 1.1



NOTES:
1. DO NOT SCALE FROM FIGURE.
2. THIS FIGURE IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION OF THE STUDY AREA IN SUPPORT OF THIS REPORT.
3. ALL LOCATIONS, DIMENSIONS, AND ORIENTATIONS ARE APPROXIMATE.
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Date: February 2015	Project: DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT AND INVENTORY, BACCALIEUISLAND LIGHTSTATION (DFRP 80521), BACCALIEU ISLAND, NL		
Drawn by: A. Hollett	Title: SITE PLAN		
Approved by: L. Wiseman	Scale: 1:750	Project No.: TF14076579	Figure No.: 1.2

APPENDIX B1

PHOTOGRAPHIC RECORD

Photo 1: Aerial view of Baccalieu Island Lightstation.

Photo 2: Aerial view of Baccalieu Island Lightstation.

Photo 3: Aerial view of Baccalieu Island Lightstation.

Photo 4: View of Baccalieu Island Lightstation.

Photo 5: View of Baccalieu Island Lightstation.

Photo 6: View of former winch house concrete foundation near double dwelling.

SECTION 2.0 EXECUTIVE SUMMARY

Hazardous materials identified at the double dwelling during the demolition HMBA are summarized in Table E-2.

Table E-2: Hazardous Material Description

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Asbestos-Containing Drywall Joint Compound	NL Asbestos Abatement Regulations (Reg. 111/98)	Interior walls and ceilings (Main Level)	610 m^2 (drywall including joint compound)	Asbestos-containing materials cannot be disposed of at a Construction & Demolition Site; however, these materials can be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Leachable Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Building interior	932 m^2	These materials are considered hazardous wastes and must be disposed according to NL policy and the Solid Waste Management Authority by an approved hazardous waste disposal company and transported under the federal Transportation of Dangerous Goods (TDG) Act.
Lead and Mercury-Based Paint		Building interior	-	All painted materials that were sampled and analyzed for lead and mercury, with the exception of the materials containing leachable lead-based paint, may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Mould	Mould Guidelines for the Canadian Construction Industry, Canadian Construction Industry, 2004; Mould Abatement Guidelines, Environmental Abatement Council of Ontario (EACO), 2010	Building interior	Large amount of suspected mould on surfaces throughout Main Level (>10 m^2)	All mould impacted materials may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Potential Lead-Containing Plumbing Solder and Older Pipe Materials	Federal Hazardous Products Act (R.S.1985, c. H-3)	Building interior	-	These materials can be disposed of at a metal recycling facility, provided permission is obtained from the facility.

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Potential Ozone Depleting Substances and Halocarbons	Federal Hydrocarbon Regulations (SOR/2003-289)	Bedroom 1-1/ Basement 2	Spray foam sealant around window framing; several sheets of rigid foam insulation.	Materials containing ozone depleting substances should be received by a contractor or facility that has the proper approvals to remove, handle and/or dispose of ozone depleting substances.
Silica Dust	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2010	Concrete, brick, mortar, grout, drywall and ceramic tile building materials	-	All concrete, brick, mortar, grout, drywall and ceramic tile can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility.
Ash	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1)	Chimneys (2)	Small Amount (<0.1 m^3)	Small amounts of ash may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Radioactive Materials	Federal Transportation of Dangerous Goods Act (1992, c. 34)	Hallway 1/ Basement 1/ Hallway 2	Smoke Detectors (3)	These low level radioactive materials must be transported, as per federal TDG regulations, to a licensed disposal facility.

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APPENDICES

2.0 DOUBLE DWELLING

The double dwelling (or lightkeeper's residence) is located on the southwest point of Baccalieu Island (refer to Figures 1.1 and 1.2, Appendix A1 and Photos 2 to 6, Appendix B1). Based on information available on the Directory of Federal Real Property website, the lightkeeper's residence (Building No. 080521) on Baccalieu Island was constructed in 1955.

2.1 BUILDING DESCRIPTION

A description of the double dwelling (or lightkeeper's residence) is outlined in Table 2-1. Photographs of the double dwelling are provided in Appendix B2.

Table 2-1: Site Building Description

Building Name	Double Dwelling	Photo (Appendix B2)
Number of Stories	One	Photos 1, 2 and 3
Basement	Yes	Photos 19 to 28
Attic	Unknown (No Access Hatches Identified)	None
Type of Structure	Wooden Frame	Photos 16, 20 and 22
Type of Foundation	Painted Concrete	Photos 21 and 26
Exterior	Painted Wooden Siding	Photos 1 to 6
Window/Door Frames	Painted Wooden Frames	Photos 1, 2 and 3
Exterior Doors	Metal	Photo 3
Roofing Materials	Asphalt Shingles	Photos 4, 6 and 55
Interior Walls Finishes (Main Level)	Painted Drywall	Photos 7 to 18
	Painted Plywood	Photo 15
	Ceramic Tile	Photos 8, 11, 35 and 40
	Painted Wooden Baseboards/Trim	Photo 12
Ceiling Finishes (Main Level)	Painted Drywall	Photos 7, 8 and 18
Floor Finishes (Main Level)	Carpet	Photos 9, 12 and 13
	Varnished/Painted Hardwood Flooring	Photo 18
	Vinyl Sheet Floor Tiles	Photos 8 and 34
	Painted Vinyl Sheet Flooring	Photo 50
	Vinyl Floor Tiles	Photo 52
Interior Doors (Main Level)	Wooden	Photo 18
Interior Walls (Basement)	Painted Concrete	Photos 22 and 26
Floors (Basement)	Painted Concrete	Photos 21 and 64
Interior Lighting	Incandescent	Photos 7, 8, 15 and 37
Exterior Lighting	None Identified	Photos 1 to 6
Heating	None Identified	None
Chimneys	Brick (2)	Photos 22 and 27
Plumbing	Cast Iron, Copper and PVC Piping	Photo 27

2.2 FINDINGS

The findings documented in this section are based on observations made by Amec Foster Wheeler personnel at the time of the Site visit and laboratory analyses of samples collected from the double dwelling.

2.2.1 Asbestos-Containing Materials (ACMs)

There are over 3,000 ACMs that are commercially available, which can be divided into two broad categories: friable and non-friable. ACMs were discontinued from use in Canada in the late 1970s/early 1980s, although non-friable asbestos is still found in many more recent buildings.

A total of 29 building material samples (BLI-AS1 to BLI-AS29) were collected from the double dwelling and analyzed for asbestos content (refer to Photos 29 to 57, Appendix B2). It should be noted that select samples were separated into sub-samples representing distinct material layers and re-labeled by the laboratory prior to analysis. Sample descriptions and analytical results are summarized in Table C2-1, Appendix C2. Sample locations and analytical results are graphically illustrated in Figures 2.1 and 2.2, Appendix A2.

2.2.1.1 Friable Materials

Friable ACMs are defined as materials that can be crumbled, pulverized and reduced to powder when dry using hand pressure. Typical friable materials include acoustical or decorative spray applications, fireproofing and thermal insulation.

2.2.1.1.1 Spray-Applied Fireproofing, Insulation and Texture Finishes

There were no spray-applied fireproofing, insulation or texture finishes observed within the double dwelling during the Site visit; therefore, no samples of these materials were collected for analysis during this assessment.

2.2.1.2 Non-Friable and Potentially Friable Materials

Non-friable ACMs are hard or manufactured products such as floor tiles, fire blankets, pre-formed manufactured cementitious insulation and wallboards, pipes, and siding, wherein the asbestos fibres are bound to the substrate. Note that although a product may be considered non-friable when new, the product may release fine dust when disturbed (e.g., deterioration, removal, renovations) and the free dust is considered friable.

2.2.1.2.1 Ceiling Tile

There were no ceiling tiles observed in the double dwelling during the Site visit; therefore, no samples of ceiling tile were collected for analysis during this assessment.

2.2.1.2.2 Drywall Joint Compound

Painted drywall was observed on the walls and ceilings in the double dwelling. Six (6) samples of drywall joint compound (BLI-AS3, BLI-AS4, BLI-AS5, BLI-AS20, BLI-AS21 and BLI-AS25) were collected from interior and exterior walls and ceilings in Living Room 1, Bathroom 2 and the Workshop and analyzed for asbestos content (refer to Photos 31, 32, 33, 48, 49 and 53, Appendix B2). Chrysotile asbestos (3%) was detected in samples BLI-AS20, BLI-AS21 and

BLI-AS25 at a level above the applicable *NL Asbestos Abatement Regulations (111/98)* (i.e., >1%) and therefore this material (i.e., drywall joint compound) is considered to be an ACM. Chrysotile asbestos (<1%) was detected in drywall joint compound sample BLI-AS4 at a level below the applicable *NL Asbestos Abatement Regulations (111/98)*. Asbestos was not detected in the other two (2) drywall joint compound samples (BLI-AS3 and BLI-AS5).

It should be noted that it is common for the asbestos content in troweled on materials, such as drywall compounds within older buildings, to vary in concentration depending on the methods used to mix and place these materials. Due to this variability in asbestos content, the drywall joint compound throughout the double dwelling should be treated as an ACM.

The condition of the drywall and associated joint compound visible throughout the double dwelling (covering an area of approximately 610 m^2) varied from fair to poor condition.

2.2.1.2.3 Vinyl Flooring Products and Mastics

Various types of vinyl flooring products and mastics were observed inside the double dwelling. Samples of the following materials were collected for analysis during this assessment:

- One (1) sample of vinyl sheet floor tile (brown, wood parquet-like pattern) and mastic (BLI-AS6) was collected from Kitchen 1 (refer to Photo 34, Appendix B2).
- One (1) sample of vinyl sheet flooring (light brown with red, blue and green specks pattern) with fabric backing (BLI-AS10) was collected from Kitchen 1 (refer to Photo 38, Appendix B2).
- One (1) sample of vinyl sheet floor tile (brown, wood parquet-like pattern) and vinyl sheet flooring (light brown with red, blue and green specks pattern) and mastic (BLI-AS13) was collected from Bathroom 1 (refer to Photo 41, Appendix B2).
- One (1) sample of painted vinyl sheet flooring (grey) with fabric backing (BLI-AS22) was collected from the Workshop (refer to Photo 50, Appendix B2).
- One (1) sample of vinyl floor tile (beige with green streaks and green with grey streaks pattern) with a tar-like backing (BLI-AS24) was collected from Bathroom 2 (refer to Photo 52, Appendix B2).

Note: prior to asbestos analysis, the laboratory separated samples BLI-AS6 and BLI-AS13 into sub-samples of tile and mastic (i.e. BLI-AS6 Tile, BLI-AS6A Mastic, BLI-AS13 Tile and BLI-AS13A Mastic).

Chrysotile asbestos (<0.25%) was detected in sub-sample BLI-AS13A Mastic (i.e. black mastic on light brown vinyl sheet flooring with red, blue and green specks pattern) at a level below the applicable *NL Asbestos Abatement Regulations (111/98)* (i.e., >1%). Asbestos was not detected in any of the other vinyl flooring products and mastic samples or sub-samples.

2.2.1.2.4 Baseboard, Carpet and Stair Tread Adhesives/Mastics

There were no baseboard or stair tread adhesives/mastics observed in the double dwelling during the Site visit; therefore, no samples of these types of adhesives/mastics were collected for analysis during this assessment.

Two (2) types of carpet (grey with coloured specks and solid grey) were observed in Living Room 1. Two (2) samples of carpet and mastic (BLI-AS1 and BLI-AS2) were collected from Living Room 1 and analyzed for asbestos content (refer to Photos 29 and 30, Appendix B2). Note: prior to asbestos analysis, the laboratory separated each sample into sub-samples of carpet and mastic (i.e. BLI-AS1-Carpet, BLI-AS1-Mastic, BLI-AS2-Carpet and BLI-AS2-Mastic). Asbestos was not detected in the carpet and mastic sub-samples.

2.2.1.2.5 Roofing Products

Due to safety concerns associated with working at height, the roof of the double dwelling was not accessed at the time of the Site visit; therefore, no samples of roofing materials were collected directly from the roof during this assessment. The roofing materials on the double dwelling consist of asphalt shingles. One (1) sample of asphalt shingle (red/black) with tar (black) roofing material debris (BLI-AS27) was collected from the ground surface on the southeast side of the double dwelling and analyzed for asbestos content (refer to Photo 55, Appendix B2). Chrysotile asbestos (<0.25%) was detected in sample BLI-AS27 (i.e. asphalt shingle with tar roofing material debris) at a level below the applicable *NL Asbestos Abatement Regulations (111/98)* (i.e., >1%).

From ground level observations, some of the penetrations in the roofing materials for vents and chimneys appeared to be sealed with caulking or other sealants. The caulking and/or sealants should be treated as suspect ACMs until samples are collected and tested to verify asbestos content.

2.2.1.2.6 Thermal System Insulation

One (1) sample of blown-in insulation (grey) (BLI-AS11) was collected from the ceiling in Kitchen 1 and analyzed for asbestos content (refer to Photo 39, Appendix B2). Asbestos was not detected in the blown-in insulation sample.

One (1) sample of spray foam sealant (yellow) (BLI-AS14) was collected around window framing in Bedroom 1-1 and analyzed for asbestos content (refer to Photo 42, Appendix B2). Asbestos was not detected in the foam insulation sample.

Two (2) samples of fibreglass insulation (grey/yellow and beige) with black/brown paper wrap backing (BLI-AS19 and BLI-AS23) were collected from the ceiling and an exterior wall in the Workshop and analyzed for asbestos content (refer to Photos 47 and 51, Appendix B2). Note: prior to asbestos analysis, the laboratory separated each sample into sub-samples of insulation and backing (i.e. BLI-AS19-Insulation, BLI-AS19-Backing, BLI-AS23-Insulation and BLI-AS23-

Backing). Asbestos was not detected in the fibreglass insulation and paper wrap backing sub-samples.

2.2.1.2.7 Weather Stripping and Caulking

There was no weather stripping observed on the lower, accessible areas on the exterior of the double dwelling during the Site visit; therefore, no samples of weather stripping were collected for analysis during this assessment.

Various types of caulking were observed on the interior and exterior of the double dwelling. Samples of the following materials were collected for analysis during this assessment:

- One (1) sample of caulking (off-white) (BLI-AS12) was collected from ceramic tile on an interior wall in Bathroom 1 (refer to Photo 40, Appendix B2).
- One (1) sample of caulking (white/grey) (BLI-AS18) was collected from around a window in Basement 1 (refer to Photo 46, Appendix B2).
- One (1) sample of caulking (white/black) (BLI-AS28) was collected from wooden clapboard on the building exterior (refer to Photo 56, Appendix B2).
- One (1) sample of caulking (white/grey) (BLI-AS29) was collected from wooden clapboard on the building exterior (refer to Photo 57, Appendix B2).

Chrysotile asbestos (ranging from 0.26% to 0.32%) was detected in samples BLI-AS12, BLI-AS28 and BLI-AS29 at levels below the applicable *NL Asbestos Abatement Regulations (111/98)* (i.e., >1%). Asbestos was not detected in the other caulking sample (BLI-AS18).

2.2.1.2.8 Mortar, Grout and Other Cementitious Materials

One (1) sample of grey mortar (BLI-AS17) was collected from the brick chimney in Basement 1 and analyzed for asbestos content (refer to Photo 45, Appendix B2). Asbestos was not detected in the mortar sample.

One (1) sample of grey grout or mortar (BLI-AS26) was collected from the former stove pipe opening to the brick chimney in the Workshop and analyzed for asbestos content (refer to Photo 54, Appendix B2). Asbestos was not detected in the grout or mortar sample.

2.2.1.2.9 Other Potential ACMs

One (1) sample of ceramic tile (white) and mastic (BLI-AS7) was collected from an interior wall in Kitchen 1 and analyzed for asbestos content (refer to Photo 35, Appendix B2). Note: prior to asbestos analysis, the laboratory separated the sample into sub-samples of tile and mastic (i.e. BLI-AS7 Tile and BLI-AS7A Mastic). Asbestos was not detected in the ceramic tile and mastic sub-samples.

One (1) sample of vinyl countertop (dark green) (BLI-AS8) was collected from the cupboards in Kitchen 1 and analyzed for asbestos content (refer to Photo 36, Appendix B2). Asbestos was not detected in the vinyl countertop sample.

One (1) sample of heat shield insulation (BLI-AS9) was collected from an incandescent light fixture in Kitchen 1 and analyzed for asbestos content (refer to Photo 37, Appendix B2). Asbestos was not detected in the heat shield insulation sample.

One (1) sample of beige adhesive (BLI-AS15) was collected from painted drywall around a window in Bedroom 1-1 and analyzed for asbestos content (refer to Photo 43, Appendix B2). Asbestos was not detected in the adhesive sample.

One (1) sample of electrical wire insulation (BLI-AS16) was collected from copper wiring in Basement 1 and analyzed for asbestos content (refer to Photo 44, Appendix B2). Asbestos was not detected in the electrical wire insulation sample.

Other potential ACMs were observed and were not sampled due to the nature of the materials and/or hazards associated with sampling these materials. These materials included, but are not limited to, electrical and mechanical components and insulators such as wiring and gaskets inside electrical panels, electronic and/or mechanical equipment. Other possible hidden and inaccessible ACMs have the potential to be present at the Site but were not identified during the Site visit. These possible ACMs could include interior components of the brick chimneys and possible fireproofing materials in the surrounding wall cavities, packing associated with cast iron pipe joints, other fire rated structures or building materials and underground infrastructure and piping (refer to Photos 22, 27 and 54, Appendix B2).

2.2.2 Paint Additives

Lead compounds have been used in paint as pigment and durability additives since the early 1800s. Mercury compounds have been used in paint as anti-microbial additives up until the 1990s. PCBs have been used in paint as plasticizers and corrosion resistance additives from the 1950s to the 1970s.

The condition of the paint visible throughout the double dwelling varied from fair to poor condition. Areas of peeling and flaking paint and mould impacted and damaged drywall were observed in various locations throughout the interior of the double dwelling (refer to Photos 7, 11, 14, 15, 16, 17, 18 and 19, Appendix B2).

A total of 12 samples (BLI-PS1 to BLI-PS12) plus one (1) field duplicate (BLI-PS-DUP1; duplicate of BLI-PS7) were collected from painted surfaces of the double dwelling and analyzed for lead and mercury content (refer to Photos 58 to 69, Appendix B2). Three (3) paint samples (BLI-PS7, BLI-PS10 and BLI-PS12) plus one (1) field duplicate (BLI-PS-DUP1; duplicate of BLI-PS7) were also analyzed for PCB content. Sample descriptions and analytical results are summarized in Tables C2-2 to C2-4, Appendix C2. Sample locations and analytical results are graphically illustrated in Figures 2.1 and 2.2, Appendix A2.

Since the concentrations of lead detected in six (6) paint samples (BLI-PS5, BLI-PS7, BLI-PS8, BLI-PS9, BLI-PS10 and BLI-PS11) exceeded the former Federal HPA criterion of 5,000 mg/kg, these paint samples were also tested for lead leachate using the TCLP to determine whether or not the paint would be considered hazardous waste upon removal from the Site. The laboratory results for lead leachate in paint are presented in Table C2-5, Appendix C2.

2.2.2.1 Lead in Paint

The concentrations of lead in the paint samples ranged from 32 mg/kg to 36,000 mg/kg (refer to Table C2-2, Appendix C2). One (1) paint sample (BLI-PS12) contained lead at a concentration below the Federal HPA criterion of 90 mg/kg (refer to Photo 69, Appendix B2). Five (5) paint samples (BLI-PS1 to BLI-PS4 and BLI-PS6), plus one (1) field duplicate sample (BLI-PS-DUP1; duplicate of BLI-PS7), contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg (refer to Photos 58 to 61 and 63, Appendix B2). Six (6) paint samples (BLI-PS5 and BLI-PS7 to BLI-PS11) contained lead at concentrations above the former Federal HPA criterion of 5,000 mg/kg (refer to Photos 62 and 64 to 68, Appendix B2).

2.2.2.2 Leachable Lead in Paint

The concentrations of leachable lead in the following paint samples were above the Schedule II leachate criterion for lead (5.00 mg/L) provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* (refer to Table C2-5, Appendix C2):

- Paint sample BLI-PS5 (14 mg/L), white over beige over yellow paint including the substrate (drywall), collected from the ceiling in Bathroom 1 (refer to Photo 62, Appendix B2). The paint on the ceiling in Bathroom 1 is in poor condition (i.e. ceiling has partially collapsed). The paint on the ceilings throughout the double dwelling appeared to be the same colour as the paint on the ceiling in Bathroom 1. The paint on the ceilings, excluding the collapsed ceiling in Bedroom 1-2, covers an area of approximately 149 m^2.
- Paint sample BLI-PS7 (9.6 mg/L), grey over red paint, collected from the concrete floor in Basement 1 (refer to Photo 64, Appendix B2). The paint on the floor in Basement 1 is in poor condition and flaking. The paint on the concrete floor in Basement 2 appeared to be the same colour as the paint on the concrete floor in Basement 1. The paint on the floors in Basement 1 and Basement 2 covers an area of approximately 114 m^2.
- Paint sample BLI-PS8 (6.9 mg/L), grey over blue over green over pink paint including the substrate (drywall), collected from an exterior wall in the Workshop (refer to Photo 65, Appendix B2). The paint on the walls in the Workshop is generally intact but is impacted by mould. The paint on the walls in the Workshop appeared to be the same colour as the paint on the floor in the Workshop and the walls in Bathroom 2. The paint on the walls and floor in the Workshop and the walls in Bathroom 2 covers an area of approximately 109 m^2.

- Paint sample BLI-PS9 (80 mg/L), red over green over peach over grey paint, collected from the wooden stairs in Basement 2 (refer to Photo 66, Appendix B2). The paint on the stairs in Basement 2 (covering an area of approximately 6 m^2) is generally intact and in fair condition.
- Paint sample BLI-PS10 (75 mg/L), grey paint, collected from an exterior concrete wall in Basement 2 (refer to Photo 67, Appendix B2). The paint on the walls in Basement 2 is in fair condition and flaking in some areas. The paint on the concrete walls in Basement 2 appeared to be the same colour as the paint on the concrete walls and wooden stairs in Basement 1. The paint on the walls and stairs in Basement 1 and walls in Basement 2 covers an area of approximately 145 m^2.
- Paint sample BLI-PS11 (38 mg/L), pink over dark pink paint, collected from an interior wall in Bedroom 3-2 (refer to Photo 68, Appendix B2). The paint on the walls in Bedroom 3-2 is in fair condition and flaking in some areas. The paint on the walls throughout the double dwelling appeared to be the same colour as the paint on the walls in Bedroom 3-2, with the exception of the Workshop, Bathroom 2, Basement 1 and Basement 2. The paint on the walls, excluding the Workshop, Bathroom 2, Basement 1 and Basement 2, covers an area of approximately 409 m^2.

Since the concentrations of leachable lead in these paint samples are at levels considered to be hazardous, building materials (and any debris) containing these paints, if removed from the Site, must be disposed of at a hazardous waste treatment facility.

2.2.2.3 Mercury in Paint

The concentrations of mercury in the paint samples ranged from non-detect (<1.0 mg/kg) to 16 mg/kg (refer to Table C2-3, Appendix C2). Four (4) paint samples (BLI-PS5, BLI-PS6, BLI-PS8 and BLI-PS11), plus one (1) field duplicate sample (BLI-PS-DUP1; duplicate of BLI-PS7), contained mercury at concentrations above the Federal HPA criterion of 10 mg/kg but below the CCME CSQG of 50 mg/kg for mercury in soil at an industrial site (refer to Photos 62, 63, 65 and 68, Appendix B2). The other eight (8) paint samples analyzed were either non-detect for mercury (i.e. <1.0 mg/kg) or contained mercury at concentrations below the applicable Federal HPA criterion (i.e. 10 mg/kg).

2.2.2.4 PCBs in Paint

The three (3) paint samples (BLI-PS7, BLI-PS10 and BLI-PS12) analyzed for PCBs, including one (1) field duplicate sample (BLI-PS-DUP1; duplicate of BLI-PS7), were non-detect (<5.0 mg/kg) and therefore did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* (refer to Table C2-4, Appendix C2).

2.2.3 PCBs in Caulking

According to the USEPA, PCBs may be present in caulking used in windows, door frames, masonry columns and other building materials in buildings built or renovated between 1950 and 1979. Since the double dwelling was constructed in 1955, four (4) samples of caulking (BLI-AS12, BLI-AS18, BLI-AS28 and BLI-AS29) were collected from interior and exterior surfaces of the building and analyzed for PCB content (refer to Photos 40, 46, 56 and 57, Appendix B2).

The four (4) caulking samples (BLI-AS12, BLI-AS18, BLI-AS28 and BLI-AS29) analyzed for PCBs were non-detect (<0.50 mg/kg) and therefore did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* (refer to Table C2-6, Appendix C2).

2.2.4 Urea Formaldehyde Foam Insulation (UFFI)

Visual indicators suggesting the potential presence of UFFI were not observed in the double dwelling. The nature of the insulation in the walls and ceilings throughout the double dwelling could not be confirmed at the time of the Site inspection. However, fibreglass and blown-in insulation was observed in the ceiling and exterior wall cavities in some areas of the building (refer to Photos 16, 39, 47 and 51, Appendix B2). Since the double dwelling was constructed in 1955, it is possible that UFFI may be present in some areas of the building that were not investigated during the intrusive cavity inspections.

The CMHC state that “tests show that UFFI is not a source of over-exposure to formaldehyde after the initial curing and release of excess gas”. The general view based on studies concerning formaldehyde emissions is that as a product ages, the amount of formaldehyde off-gassed from the product decreases over time. The amount of formaldehyde released is reportedly dependant on temperature, humidity and whether or not the product is exposed to excessive moisture or water. According to the USEPA, increases in temperature, humidity and moisture conditions can cause increases in the amount of formaldehyde released from newer products that are considered to be sources of formaldehyde emissions. The USEPA report that “studies show that formaldehyde emissions from UFFI decline with time; therefore, homes in which UFFI was installed many years ago are unlikely to have high levels of formaldehyde now”.

2.2.5 Suspected Visible Mould Growth (SVG)

Amec Foster Wheeler inspected the interior areas of the double dwelling for visual or olfactory evidence of suspected mould. A malodour was noted upon entry into the main level of the building. Peeling and flaking paint that can be a result of building materials compromised by moisture was observed on several walls and ceilings of the double dwelling (refer to Photos 7 and 15, Appendix B2). Areas of SVG, collapsed and deteriorated drywall, and water damage were observed on the interior surfaces of the building (refer to Photos 11, 14, 16, 70 and 71, Appendix B2).

One (1) sample of painted drywall (BLI-MS2) with SVG was collected from an exterior wall in the Workshop and analyzed for mould growth (refer to Figure 2.1, Appendix A2 and Photo 65, Appendix B2). The laboratory results confirmed that moderate to abundant mould growth was present in the sample (refer to Table C2-7, Appendix C2). The types of mould identified in the sample were *Cladosporium*, *Penicillium* and *Acremonium*.

2.2.6 Mercury-Containing Thermostats

There were no thermostats observed in the double dwelling during the Site visit. Therefore, no thermostats were inspected for the presence of mercury-containing switches.

2.2.7 PCB-Containing Light Ballasts

There were no fluorescent light fixtures observed in the double dwelling during the Site visit. Therefore, no fluorescent light ballasts were inspected for the presence or absence of PCB-containing dielectric fluid.

2.2.8 Potential Sources of ODSs and Halocarbons

Potential sources of ODSs identified during the Site inspection included several sheets of pink rigid foam insulation that were observed inside Basement 2 and yellow spray foam sealant that was observed around window framing in Bedroom 1-1 (refer to Photos 28 and 42, Appendix B2).

2.2.9 Petroleum Storage Tanks

No petroleum aboveground storage tanks (ASTs) were identified inside the double dwelling during this assessment. It is important to note that two confined areas located inside the basement of the building that were formerly used as water cisterns were not accessible for inspection during this assessment.

2.2.10 Other Potentially Hazardous Building Materials or Substances

Other potentially hazardous building materials or substances identified during this assessment are presented in the following sections.

2.2.10.1 Mercury

Fluorescent light tubes and bulbs often contain limited quantities of mercury in a powder or vapour form; however, no fluorescent light tubes or bulbs were observed within the double dwelling during this assessment.

2.2.10.2 Lead

Lead is typically associated with plumbing solder and older pipe materials (e.g., cast iron pipe joints), as well as products such as radiation protective shielding and lead-acid batteries.

Since the double dwelling was constructed in 1955, Amec Foster Wheeler expects that lead solder is present in the plumbing (i.e. cast iron and copper piping) in the dwelling, as lead solder for use in potable water distribution pipes was not banned until the late 1980s.

2.2.10.3 Silica

Silica is expected to be present in concrete, brick, mortar, grout, drywall and ceramic tile building materials used to construct the double dwelling.

2.2.10.4 Ash

A small quantity of ash was observed inside the brick chimney in Basement 1. Solid wastes such as ash from chimneys or furnaces may contain heavy metals, polycyclic aromatic hydrocarbons (PAHs) and/or fuel oil components (i.e. benzene, toluene, ethylbenzene, xylene [BTEX] and total petroleum hydrocarbons [TPH]).

2.2.10.5 Radioactive Materials

Three (3) smoke detectors were observed inside Hallway 1, Basement 1, Hallway 2 (refer to Photos 22 and 72, Appendix B2). The type of smoke detector observed commonly contains very small amounts of radioactive material (i.e. Americum 241). Smoke alarms that use radioactive material incorporated in an ionization chamber are called "ion chamber smoke alarms". The radioactive material emits alpha particles and low energy gamma rays. The alpha particles are absorbed within the alarm, while most of the gamma rays escape. The alpha particles collide with the air in the ionization chamber to produce charged particles called ions. A low-level electric voltage is applied to the chamber to collect these ions, causing a steady electric current to flow. Smoke or hot air entering the chamber changes the rate of ionization and, therefore the electric current level, which triggers an alarm. Domestic smoke alarms containing radioactive material are completely safe under all residential conditions[1].

2.3 CONCLUSIONS AND RECOMMENDATIONS

Based on observations made and information gathered during this HMBA, the following conclusions and recommendations are made with respect to the potential and actual presence of hazardous building materials at the double dwelling:

- **Asbestos-Containing Materials (ACMs)**
    - Building materials containing greater than 1% asbestos by dry weight, which are considered to be ACMs, are present in the form of potentially friable drywall joint compound. The condition of drywall and associated joint compound visible throughout the double dwelling varied from fair to poor condition; therefore, priority should be given to the removal of any deteriorated joint compound and

[1] Nuclear Facts: How is nuclear technology used in smoke detectors? Canadian Nuclear Association. 18 March 2005 < http://www.cna.ca/english/Nuclear_Facts/18-Nuclear%20Facts-smoke%20detectors.pdf>.

associated debris inside the double dwelling.

- Building materials containing less than 1% asbestos by dry weight are present in the form of mastic on vinyl sheet flooring, asphalt roofing shingles and caulking.
- Other potential ACMs were observed and were not sampled due to the nature of the materials and/or hazards associated with sampling these materials. These materials included, but are not limited to, caulking and/or sealants around penetrations in roofing materials for vents and chimneys, electrical and mechanical components and insulators such as wiring and gaskets inside electrical panels, and electronic and/or mechanical equipment.
- Other possible hidden and inaccessible ACMs have the potential to be present at the Site but were not identified during the Site visit. These possible ACMs could include interior components of the brick chimneys and possible fireproofing materials in the surrounding wall cavities, packing associated with cast iron pipe joints, other fire rated structures or building materials and underground infrastructure and piping.
- If other potential ACMs that were not sampled as part of this assessment are encountered in the future, these materials should be treated as ACMs or samples should be collected and tested to verify asbestos content. This should be done as soon as these materials are encountered and before these materials are disturbed. This includes materials that are currently concealed by walls and ceiling systems.
- In accordance with the *NL Asbestos Abatement Regulations (Reg. 111/98)*, which provide the legislative requirements for safe handling of ACMs in workplaces in the Province of NL, the following is recommended:
    - Safe work procedures shall be established.
    - All buildings constructed during the period when asbestos was readily used in construction must have a written assessment and management plan (where applicable) for potential ACMs.
    - Prior to general disturbance activity (e.g., demolition, renovation or removal), all ACMs must be safely removed from the double dwelling and disposed of in accordance with appropriate environmental guidelines by an asbestos abatement contractor registered with the Department of Labour, Occupational Health and Safety Branch.
- Prior to demolition, ACMs in good condition should be inspected on an annual basis. ACMs in poor condition should be removed from the double dwelling and transported off-site for proper disposal in accordance with the *NL Asbestos Abatement Regulations (Reg. 111/98)*.
- ACMs can be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.

- **Lead, Mercury and PCBs in Paint**
  - Five (5) paint samples contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg and six (6) paint samples contained lead at concentrations above the former Federal HPA criterion of 5,000 mg/kg. These paints are considered to be lead-based paints that are regulated under the Federal Surface Coating Materials Regulations.
  - The concentrations of leachable lead in the following six (6) paint samples were above the Schedule II leachate criterion for lead (5.00 mg/L) provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* and are therefore at levels considered to be hazardous:
    - White over beige over yellow paint (14 mg/L), including drywall substrate, collected from the ceiling in Bathroom 1.
    - Grey over red paint (9.6 mg/L) collected from the concrete floor in Basement 1.
    - Grey over blue over green over pink paint (6.9 mg/L), including drywall substrate, collected from an exterior wall in the Workshop.
    - Red over green over peach over grey paint (80 mg/L) collected from the wooden stairs in Basement 2.
    - Grey paint (75 mg/L) collected from an exterior concrete wall in Basement 2.
    - Pink over dark pink paint (38 mg/L) collected from an interior wall in Bedroom 3-2.
  - Any building materials containing these lead leachable paints, if removed from the Site, must be disposed of at a hazardous waste treatment facility.
  - Four (4) paint samples contained mercury at concentrations above the Federal HPA criterion of 10 mg/kg but below the CCME CSQG of 50 mg/kg for mercury in soil at an industrial site. These paints are considered to be mercury-based paints that are regulated under the Federal Surface Coating Materials Regulations. Eight (8) paint samples were either non-detect for mercury (i.e. <1.0 mg/kg) or contained mercury at concentrations below the applicable Federal HPA criterion (i.e. 10 mg/kg).
  - PCBs were not detected above the reportable detection limit (5.0 mg/kg) in the three (3) paint samples analyzed and therefore the concentrations of PCBs in these samples did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)*.
  - Results of the paint sampling and analytical program revealed lead and mercury-based paint finishes on the interior of the double dwelling (i.e., the concentrations of lead and mercury in some paint finishes were above the applicable Federal HPA criteria of 90 mg/kg for lead and 10 mg/kg for mercury). There are potential

adverse human health impacts associated with disturbing (e.g., scraping) lead and mercury-based paint finishes. Due to the high concentrations of lead identified in paint in several areas throughout the double dwelling, a lead abatement contractor should be utilized for decommissioning/demolition activities.

- If potential lead, mercury or PCB containing paint finishes that were not sampled during this assessment are encountered in future, samples should be obtained and tested to verify lead, mercury and PCB content. This should be done as soon as the paint is encountered and before it is disturbed. This includes materials that are currently concealed by walls and ceiling systems.

- **PCBs in Caulking**
  - PCBs were not detected above the reportable detection limit (0.50 mg/kg) in the four (4) caulking samples analyzed and therefore the concentrations of PCBs in these samples did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)*.

- **Urea Formaldehyde Foam Insulation (UFFI)**
  - Based on a visual intrusive inspection, there was no evidence that UFFI is present in this structure. However, the inferred age of the double dwelling suggests that UFFI could be present in some areas of the building that were not investigated during the intrusive cavity inspections. Based on the sources of information reviewed by Amec Foster Wheeler to assess whether UFFI is considered to be a potential environmental concern (refer to Sections 1.5.3 and 2.2.4), it can be inferred that any UFFI present within the double dwelling is unlikely to affect the indoor air quality due to the amount of time that has passed since the insulation was likely installed (i.e. prior to 1980) along with the likelihood that formaldehyde has off-gassed over this period of time. It should be noted that, the presence and concentration of formaldehyde cannot be determined or quantified without conducting Site-specific testing for formaldehyde.

- **Mould**
  - Peeling and flaking paint that can be a result of building materials compromised by moisture was observed on several walls and ceilings of the double dwelling. A malodour was also noted upon entry into the main level of the building and areas of SVG, collapsed and deteriorated drywall, and water damage were observed on the interior surfaces of the building.
  - The laboratory results for one (1) sample of painted drywall with SVG collected from the Workshop confirmed that moderate to abundant mould growth (*Cladosporium*, *Penicillium* and *Acremonium*) was present in the sample.
  - Existing conditions in the double dwelling (e.g., roof and window leaks, improper ventilation, inadequate building heating, prolonged periods of increased moisture, areas open to the environment) may potentially contribute to or enhance mould

growth inside the building.

- Workers on-Site should don proper personal protective equipment (PPE) to prevent/reduce exposure to mould while working within the double dwelling or during any disturbance/demolition of building materials that may be impacted by mould growth.
- It should be noted that asbestos may be present in drywall joint compound in areas where mould is present on drywall.

- **Potential Sources of ODSs and Halocarbons**
  - Potential sources of ODSs identified inside the double dwelling during the Site inspection included pink rigid foam insulation and yellow spray foam sealant. According to the USEPA, certain foam products that are made of rigid or aerosolized polyurethane foam may contain or may have been manufactured with hydrochlorofluorocarbons (HCFCs). HCFCs are listed as regulated halocarbons under the Provincial and Federal Halocarbon Regulations.
  - The use, storage, operation, maintenance, decommissioning, and disposal of ODS containing equipment or materials in general is regulated at both a Provincial and Federal level and must comply with the most recent NL Halocarbon Regulations and the Federal Halocarbon Regulations. The status of potential ODS containing materials should be confirmed through a contractor or consultant prior to disposal. Equipment or materials containing ODSs should be received by a contractor or facility that has the proper approvals to remove, handle and dispose of ODSs.

- **Lead-Containing Materials/Equipment**
  - The double dwelling was constructed in 1955; therefore, lead may be present in plumbing (i.e. cast iron and copper piping) in the building, since the lead content in solders and fluxes was not limited to 0.2% in potable water systems until 1990 (*National Plumbing Code of Canada*).
  - The disturbance, control or disposal of lead-containing material/equipment (e.g., solder on copper or cast iron piping, etc.) should be carried out in accordance with applicable criteria/regulations (refer to Section 1.4). The presence/absence of lead in these materials should be confirmed through a contractor or consultant prior to disturbance or disposal of these materials. Typically these materials are sent to a metal recycling facility and not a landfill.

- **Silica Dust**
  - Silica is expected to be present in concrete, brick, mortar, grout, drywall and ceramic tile building materials used to construct the double dwelling.
  - Precautions should be taken to prevent/reduce exposure to silica dust during any disturbance/demolition of silica-containing products, such as wetting the surface of the materials to prevent dust emissions, donning respiratory protection, and cleaning tools and clothing prior to exiting the work area.

- **Ash**
  - A small quantity of ash was observed inside one of the brick chimneys in the basement of the double dwelling and ash may also be present inside the other brick chimney. Solid wastes such as ash from chimneys or furnaces may contain heavy metals, PAHs and/or fuel oil components.
  - According to the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)*, regulatory approval from the NL Department of Environment and Conservation (ENVC) for landfill disposal of solid wastes is dependent upon the following conditions: 1) results of sample analysis by a Canadian Association for Laboratory Accreditation Inc. (CALA) certified laboratory either meet the CCME CSQG for industrial land use; or 2) results of sample analysis by a CALA certified laboratory pass the TCLP test for leachability for the parameters listed in Schedule II Leachate Test. Consideration should be given to the proper testing and disposal of ash at the Site; however, small quantities of chimney ash may be disposed of at an approved landfill facility, pending landfill and Provincial regulatory approval.
  - Workers handling the ash should don proper PPE to prevent/reduce exposure to potential contaminants (i.e. heavy metals, PAHs and/or fuel oil components) in the ash.
- **Radioactive Materials**
  - Three (3) smoke detectors were observed inside the double dwelling. The type of smoke detector observed commonly contains very small amounts of radioactive material (i.e. Americum 241).
  - The smoke detectors should be removed intact, stored in a properly labeled container and transported, as per TDG regulations, to a licensed disposal facility.

Hazardous materials identified at the double dwelling during this HBMA are summarized in Table 2-2.

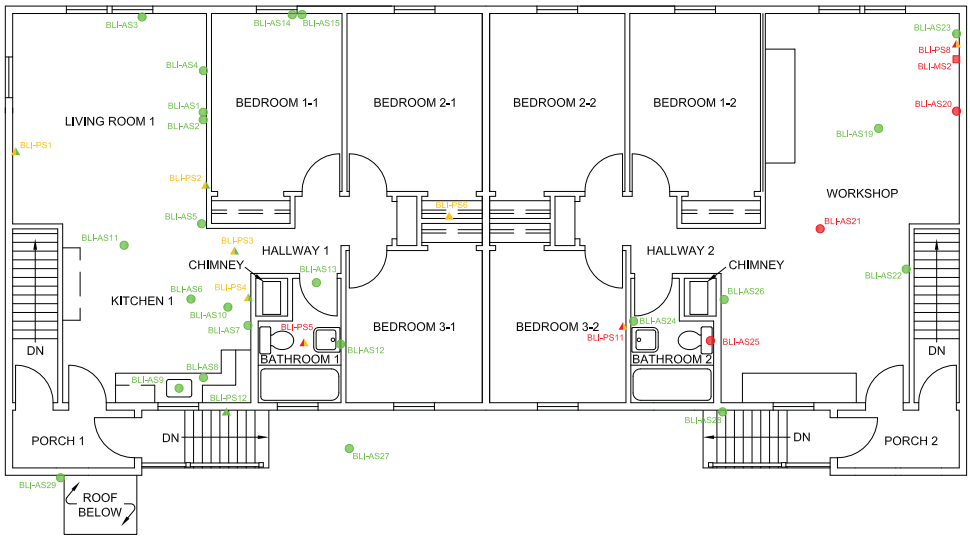
Table 2-2: Hazardous Material Description

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Asbestos-Containing Drywall Joint Compound	NL Asbestos Abatement Regulations (Reg. 111/98)	Interior walls and ceilings (Main Level)	610 m^2	Asbestos-containing materials cannot be disposed of at a Construction & Demolition Site; however, these materials can be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Leachable Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1);	Building interior	932 m^2	These materials are considered hazardous wastes and must be disposed according to NL policy and the Solid Waste Management Authority by an approved hazardous waste disposal company and transported under the federal Transportation of Dangerous Goods (TDG) Act.

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Lead and Mercury-Based Paint	Federal Transportation of Dangerous Goods Act (1992, c. 34)	Building interior	-	All painted materials that were sampled and analyzed for lead and mercury, with the exception of the materials containing leachable lead-based paint, may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Mould	Mould Guidelines for the Canadian Construction Industry, Canadian Construction Industry, 2004; Mould Abatement Guidelines, Environmental Abatement Council of Ontario (EACO), 2010	Building interior	Large amount of suspected mould on surfaces throughout Main Level (>10 m^2)	All mould impacted materials may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Potential Lead-Containing Plumbing Solder and Older Pipe Materials	Federal Hazardous Products Act (R.S.1985, c. H-3)	Building interior	-	These materials can be disposed of at a metal recycling facility, provided permission is obtained from the facility.
Potential Ozone Depleting Substances and Halocarbons	Federal Hydrocarbon Regulations (SOR/2003-289)	Bedroom 1-1/ Basement 2	Spray foam sealant around window framing; several sheets of rigid foam insulation.	Materials containing ozone depleting substances should be received by a contractor or facility that has the proper approvals to remove, handle and/or dispose of ozone depleting substances.
Silica Dust	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2010	Concrete, brick, mortar, grout, drywall and ceramic tile building materials	-	All concrete, brick, mortar, grout, drywall and ceramic tile can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility.
Ash	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1)	Chimneys (2)	Small Amount (<0.1 m^3)	Small amounts of ash may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Radioactive Materials	Federal Transportation of Dangerous Goods Act (1992, c. 34)	Hallway 1/ Basement 1/ Hallway 2	Smoke Detectors (3)	These low level radioactive materials must be transported, as per federal TDG regulations, to a licensed disposal facility.

APPENDIX A2

FIGURES



LEGEND:

- PAINT SAMPLE LOCATION - NO CRITERIA EXCEEDANCES FOR LEAD OR MERCURY
- PAINT SAMPLE LOCATION - RESULTS EXCEED 90 mg/kg AND LESS THAN 5000 mg/kg FOR LEAD AND NO CRITERIA EXCEEDANCE FOR MERCURY
- PAINT SAMPLE LOCATION - RESULTS EXCEED 90 mg/kg AND LESS THAN 5000 mg/kg FOR LEAD AND EXCEED 10 mg/kg AND LESS THAN 24 mg/kg FOR MERCURY
- PAINT SAMPLE LOCATION - RESULTS EXCEED 5000 mg/kg FOR LEAD AND EXCEED 10 mg/kg AND LESS THAN 24 mg/kg FOR MERCURY
- ASBESTOS SAMPLE LOCATION - ASBESTOS NOT DETECTED OR RESULTS < 1% FOR ASBESTOS
- ASBESTOS SAMPLE LOCATION - RESULTS > 1% FOR ASBESTOS
- MOULD SAMPLE LOCATION - MODERATE TO ABUNDANT MOULD GROWTH DETECTED

NOTE:

1. DO NOT SCALE FROM FIGURE.
2. THIS FIGURE IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION OF THE STUDY AREA IN SUPPORT OF THIS REPORT.
3. ALL LOCATIONS, DIMENSIONS, AND ORIENTATIONS ARE APPROXIMATE.
4. THIS FIGURE SHOULD NOT BE USED FOR PURPOSES OTHER THAN THOSE OUTLINED ABOVE.
5. THIS FIGURE CONTAINS INTELLECTUAL PROPERTY OF PUBLIC WORKS AND GOVERNMENT SERVICES CANADA AND MAY NOT BE REPRODUCED OR COPIED WITHOUT THEIR WRITTEN CONSENT.
6. THIS FIGURE WAS PRODUCED USING FIELD NOTES AND FIGURES PROVIDED BY PUBLIC WORKS AND GOVERNMENT SERVICES CANADA.

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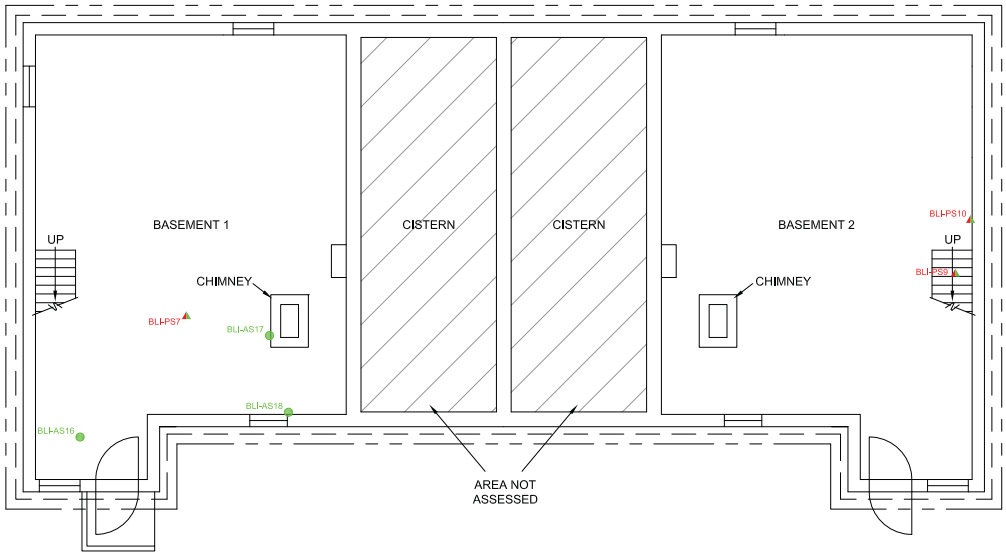
DWN BY:	A. Hollett
CHK'D BY:	L. Wiseman
SCALE:	NTS
PROJECT	DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT AND INVENTORY, BACCALIEU ISLAND LIGHTSTATION (DFRP 80521), BACCALIEU ISLAND, NL
TITLE	SAMPLE LOCATION PLAN - DOUBLE DWELLING (MAIN LEVEL)
DATE	February 2015
PROJECT No.	TF14076579
REV. No.	0
FIGURE No.	2.1



LEGEND:

▲ PAINT SAMPLE LOCATION - RESULTS EXCEED 5000 mg/kg FOR LEAD AND NO CRITERIA EXCEEDANCE FOR MERCURY

● ASBESTOS SAMPLE LOCATION - ASBESTOS NOT DETECTED OR RESULTS < 1% FOR ASBESTOS

NOTE:

1. DO NOT SCALE FROM FIGURE.
2. THIS FIGURE IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION OF THE STUDY AREA IN SUPPORT OF THIS REPORT.
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SCALE: NTS

PROJECT: DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT AND INVENTORY, BACCALIEU ISLAND LIGHTSTATION (DFRP 80521), BACCALIEU ISLAND, NL

TITLE: SAMPLE LOCATION PLAN - DOUBLE DWELLING (BASEMENT)

DATE: February 2015
PROJECT No.: TF14076579
REV. No.: 0
FIGURE No.: 2.2

APPENDIX B2

PHOTOGRAPHIC RECORD

Photo 1: View of southeast side of double dwelling.

Photo 2: View of southeast side of double dwelling.

Photo 3: View of southeast side of double dwelling.

Photo 4: View of southwest side of double dwelling.

Photo 5: View of northwest side of double dwelling.

Photo 6: View of northeast side of double dwelling.

Photo 7: View of Porch 1 in double dwelling. Note: flaking paint.

Photo 8: View of Kitchen 1 in double dwelling.

Photo 9: View of Living Room 1 in double dwelling.

Photo 10: View of Bedroom 1-1 in double dwelling.

Photo 11: View of Bathroom 1 in double dwelling. Note: ceiling debris on floor.

Photo 12: View of Bedroom 2-1 in double dwelling.

Photo 13: View of Bedroom 3-1 in double dwelling.

Photo 14: View of Workshop in double dwelling. Note: ceiling debris on floor.

Photo 15: View of Bathroom 2 in double dwelling. Note: flaking paint.

Photo 16: View of Bedroom 1-2 in double dwelling. Note: collapsed ceiling.

Photo 17: View of Bedroom 2-2 in double dwelling. Note: ceiling debris on floor.

Photo 18: View of Bedroom 3-2 in double dwelling. Note: flaking paint debris on floor.

Photo 19: View of Basement 1 in double dwelling. Note: flaking paint on floor.

Photo 20: View of Basement 1 in double dwelling.

Photo 21: View of Basement 1 in double dwelling.

Photo 22: View of Basement 1 in double dwelling. Note: smoke detector.

Photo 23: View of Basement 1 in double dwelling.

Photo 24: View of Basement 2 in double dwelling.

Photo 25: View of Basement 2 in double dwelling.

Photo 26: View of Basement 2 in double dwelling.

Photo 27: View of Basement 2 in double dwelling.

Photo 28: View of Basement 2 in double dwelling. Note: rigid foam insulation.

Photo 29: View of carpet and mastic sample BLI-AS1.

Photo 30: View of carpet and mastic sample BLI-AS2.

Photo 31: View of drywall joint compound sample BLI-AS3.

Photo 32: View of drywall joint compound sample BLI-AS4.


Photo 33: View of drywall joint compound sample BLI-AS5.


Photo 34: View of vinyl sheet floor tile and mastic sample BLI-AS6.


Photo 35: View of ceramic tile and mastic sample BLI-AS7.

Photo 36: View of vinyl countertop sample BLI-AS8.

Photo 37: View of heat shield insulation sample BLI-AS9.

Photo 38: View of vinyl sheet flooring sample BLI-AS10.


Photo 39: View of location of insulation sample BLI-AS11.

Photo 40: View of caulking sample BLI-AS12


Photo 41: View of vinyl sheet floor tile and vinyl sheet flooring/mastic sample BLI-AS13.


Photo 42: View of spray foam sealant sample BLI-AS14.

Photo 43: View of adhesive sample BLI-AS15.

Photo 44: View of wire insulation sample BLI-AS16.

Photo 45: View of brick mortar sample BLI-AS17.

Photo 46: View of caulking sample BLI-AS18

Photo 47: View of insulation and paper wrap sample BLI-AS19.

Photo 48: View of drywall joint compound sample BLI-AS20.

Photo 49: View of drywall joint compound sample BLI-AS21.

Photo 50: View of vinyl sheet flooring sample BLI-AS22.

Photo 51: View of insulation and paper wrap sample BLI-AS23.

Photo 52: View of vinyl floor tile sample BLI-AS24.

Photo 53: View of drywall joint compound sample BLI-AS25.


Photo 54: View of brick mortar or grout sample BLI-AS26.

Photo 55: View of asphalt shingle sample BLI-AS27.


Photo 56: View of caulking sample BLI-AS28


Photo 57: View of caulking sample BLI-AS29


Photo 58: View of paint sample BLI-PS1.

Photo 59: View of paint sample BLI-PS2.


Photo 60: View of paint sample BLI-PS3.

Photo 61: View of paint sample BLI-PS4.

Photo 62: View of paint sample BLI-PS5.

Photo 63: View of paint sample BLI-PS6.


Photo 64: View of paint sample BLI-PS7.

Photo 65: View of paint sample BLI-PS8 and location of mould sample BLI-MS2.

Photo 66: View of paint sample BLI-PS9.

Photo 67: View of paint sample BLI-PS10.

Photo 68: View of paint sample BLI-PS11.

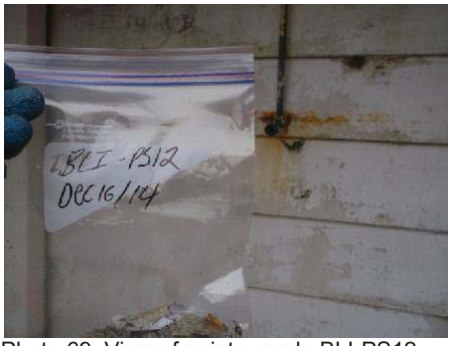

Photo 69: View of paint sample BLI-PS12.


Photo 70: View of collapsed drywall and areas of SVG on drywall in Workshop.


Photo 71: View of collapsed drywall and areas of flaking paint in Hallway 1.


Photo 72: View of smoke detector on ceiling in Hallway 2.

APPENDIX C2

SAMPLE AND ANALYTICAL SUMMARY TABLES

Table C2-1: Bulk Sample Descriptions and Asbestos Analytical Results

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location (Room No.)	Analytical Result
BLI-AS1-Carpet	Carpet	Carpet (grey) with coloured specks.	Double Dwelling Living Room 1	ND
BLI-AS1-Mastic	Carpet Mastic	Mastic (beige) on carpet (grey) with coloured specks.	Double Dwelling Living Room 1	ND
BLI-AS2-Carpet	Carpet	Carpet (grey).	Double Dwelling Living Room 1	ND
BLI-AS2-Mastic	Carpet Mastic	Mastic (beige) with carpet (grey).	Double Dwelling Living Room 1	ND
BLI-AS3	Drywall Joint Compound	Drywall joint compound (white/beige) on painted exterior wall (pink).	Double Dwelling Living Room 1	ND
BLI-AS4	Drywall Joint Compound	Drywall joint compound (white/beige) on painted interior wall (pink).	Double Dwelling Living Room 1	<1% Chrysotile
BLI-AS5	Drywall Joint Compound	Drywall joint compound (white/beige) on painted ceiling (white).	Double Dwelling Living Room 1	ND
BLI-AS6 Tile	Vinyl Sheet Floor Tile	Vinyl sheet floor tile with wood parquet-like pattern (brown).	Double Dwelling Kitchen 1	ND
BLI-AS6A Mastic	Vinyl Sheet Floor Tile Mastic	Mastic (black) on vinyl sheet floor tile with wood parquet-like pattern (brown).	Double Dwelling Kitchen 1	ND
BLI-AS7 Tile	Ceramic Tile	Ceramic tile (white).	Double Dwelling Kitchen 1	ND

Notes:
ND: Non-detect
ND = <1% asbestos
Shaded results greater than 1% asbestos by dry weight are considered to be asbestos-containing materials (ACMs) as outlined in the Newfoundland and Labrador Asbestos Abatement Regulations (Reg. 111/98)

Table C2-1: Bulk Sample Descriptions and Asbestos Analytical Results (Continued)

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location (Room No.)	Analytical Result
BLI-AS7A Mastic	Ceramic Tile	Mastic (beige) on ceramic tile (white).	Double Dwelling Kitchen 1	ND
BLI-AS8	Vinyl Countertop	Vinyl countertop (dark green).	Double Dwelling Kitchen 1	ND
BLI-AS9	Heat Shield Insulation	Incandescent light heat shield with fibre-like backing.	Double Dwelling Kitchen 1	ND
BLI-AS10	Vinyl Sheet Flooring	Vinyl sheet flooring (light brown) with red, blue and green specks and fabric backing.	Double Dwelling Kitchen 1	ND
BLI-AS11	Insulation	Blown-in insulation (grey) above painted ceiling (white).	Double Dwelling Kitchen 1	ND
BLI-AS12	Caulking	Caulking (off-white) on ceramic tile (white) and painted drywall (pink) on interior wall.	Double Dwelling Bathroom 1	0.26% Chrysotile
BLI-AS13 Tile	Vinyl Sheet Floor Tile & Vinyl Sheet Flooring	Vinyl sheet floor tile with wood parquet-like pattern (brown) and vinyl sheet flooring (light brown) with red, blue and green specks.	Double Dwelling Bathroom 1	ND
BLI-AS13A Mastic	Vinyl Sheet Flooring Mastic	Mastic (black) on vinyl sheet flooring (light brown) with red, blue and green specks.	Double Dwelling Bathroom 1	<0.25% Chrysotile
BLI-AS14	Sealant	Spray foam sealant (yellow) around window framing.	Double Dwelling Bedroom 1-1	ND
BLI-AS15	Adhesive	Beige adhesive on painted drywall (pink) around window.	Double Dwelling Bedroom 1-1	ND

Notes:
ND: Non-detect
ND = <1% asbestos
Shaded results greater than 1% asbestos by dry weight are considered to be asbestos-containing materials (ACMs) as outlined in the Newfoundland and Labrador Asbestos Abatement Regulations (Reg. 111/98)

Table C2-1: Bulk Sample Descriptions and Asbestos Analytical Results (Continued)

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location (Room No.)	Analytical Result
BLI-AS16	Wire Insulation	Woven fibre coating (black/grey) with paper/cardboard wrap and plastic over copper wire.	Double Dwelling Basement 1	ND
BLI-AS17	Mortar	Mortar (grey) on brick chimney.	Double Dwelling Basement 1	ND
BLI-AS18	Caulking	Caulking (white/grey) around window.	Double Dwelling Basement 1	ND
BLI-AS19-Insulation	Insulation	Fibreglass insulation (grey/yellow) above painted ceiling (white).	Double Dwelling Workshop	ND
BLI-AS19-Backing	Paper Wrap	Paper wrap (brown/black) on fibreglass insulation (grey/yellow).	Double Dwelling Workshop	ND
BLI-AS20	Drywall Joint Compound	Drywall joint compound (beige) on painted exterior wall (grey).	Double Dwelling Workshop	3% Chrysotile
BLI-AS21	Drywall Joint Compound	Drywall joint compound (beige) on painted ceiling (white).	Double Dwelling Workshop	3% Chrysotile
BLI-AS22	Vinyl Sheet Flooring	Painted vinyl sheet flooring (grey) with fabric backing.	Double Dwelling Workshop	ND
BLI-AS23-Insulation	Insulation	Fibreglass insulation (beige) in painted exterior wall (grey).	Double Dwelling Workshop	ND
BLI-AS23-Backing	Paper Wrap	Paper wrap (brown/black) on fibreglass insulation (beige).	Double Dwelling Workshop	ND

Notes:
ND: Non-detect
ND = <1% asbestos
Shaded results greater than 1% asbestos by dry weight are considered to be asbestos-containing materials (ACMs) as outlined in the Newfoundland and Labrador Asbestos Abatement Regulations (Reg. 111/98)

Table C2-1: Bulk Sample Descriptions and Asbestos Analytical Results (Continued)

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location (Room No.)	Analytical Result
BLI-AS24	Vinyl Floor Tile	Vinyl floor tile (beige) with green streaks and vinyl floor tile (green) with grey streaks and tar-like backing (black).	Double Dwelling Bathroom 2	ND
BLI-AS25	Drywall Joint Compound	Drywall joint compound (beige) on painted interior wall (white).	Double Dwelling Bathroom 2	3% Chrysotile
BLI-AS26	Grout or Mortar	Grout or mortar (grey) on brick chimney.	Double Dwelling Workshop	ND
BLI-AS27	Asphalt Shingle and Tar	Asphalt shingle (red/black) with tar (black) debris on ground surface.	Double Dwelling Exterior	<0.25% Chrysotile
BLI-AS28	Caulking	Caulking (white/black) on painted wooden clapboard (white).	Double Dwelling Exterior	0.32% Chrysotile
BLI-AS29	Caulking	Caulking (white/grey) on painted wooden clapboard (white).	Double Dwelling Exterior	0.29% Chrysotile

Notes:
ND: Non-detect
ND = <1% asbestos
Shaded results greater than 1% asbestos by dry weight are considered to be asbestos-containing materials (ACMs) as outlined in the Newfoundland and Labrador Asbestos Abatement Regulations (Reg. 111/98)

Table C2-2: Paint Sample Descriptions and Lead Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Lead (mg/kg)
BLI-PS1	Pink over grey paint.	Drywall	Double Dwelling Living Room 1	5.0	**300**
BLI-PS2	Pink over grey over blue over blue/green paint.	Drywall	Double Dwelling Living Room 1	5.0	**140**
BLI-PS3	White paint.	Drywall	Double Dwelling Kitchen 1	5.0	**290**
BLI-PS4	Pink over grey over purple over blue over green over yellow	Wood Board/Drywall	Double Dwelling Kitchen 1	5.0	**3,200**
BLI-PS5	White over beige over yellow paint.	Drywall	Double Dwelling Bathroom 1	5.0	**12,000**
BLI-PS6	Blue over grey over green paint.	Drywall	Double Dwelling Bedroom 2-1	5.0	**440**
BLI-PS7	Grey over red paint.	Concrete	Double Dwelling Basement 1	5.0	**6,300**
BLI-PS8	Grey over blue over green over pink paint.	Drywall	Double Dwelling Workshop	5.0	**27,000**
BLI-PS9	Red over green over peach over grey paint.	Wood	Double Dwelling Basement 2	5.0	**36,000**
BLI-PS10	Grey paint.	Concrete	Double Dwelling Basement 2	5.0	**20,000**
BLI-PS11	Pink over dark pink paint.	Drywall	Double Dwelling Bedroom 3-2	5.0	**29,000**
BLI-PS12	White over white paint.	Wood Board	Double Dwelling Exterior	5.0	32
BLI-PS-DUP1	Grey over red paint.	Concrete	Double Dwelling Basement 1	5.0	**2,200**

Notes:
RDL: Reportable detection limit
<X: Non-detect
HPA: Hazardous Products Act
BLI-PS-DUP1 is a duplicate of BLI-PS7.
Bold and underlined results indicate that lead concentration is above the Federal HPA criterion of 90 mg/kg.
Shaded results indicate that lead concentration is above the former Federal HPA criterion of 5,000 mg/kg.

Table C2-3: Paint Sample Descriptions and Mercury Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Mercury (mg/kg)
BLI-PS1	Pink over grey paint.	Drywall	Double Dwelling Living Room 1	1.0	<1.0
BLI-PS2	Pink over grey over blue over blue/green paint.	Drywall	Double Dwelling Living Room 1	1.0	<1.0
BLI-PS3	White paint.	Drywall	Double Dwelling Kitchen 1	1.0	<1.0
BLI-PS4	Pink over grey over purple over blue over green over yellow	Wood Board/Drywall	Double Dwelling Kitchen 1	1.0	3.1
BLI-PS5	White over beige over yellow paint.	Drywall	Double Dwelling Bathroom 1	1.0	**16**
BLI-PS6	Blue over grey over green paint.	Drywall	Double Dwelling Bedroom 2-1	1.0	**13**
BLI-PS7	Grey over red paint.	Concrete	Double Dwelling Basement 1	1.0	6.1
BLI-PS8	Grey over blue over green over pink paint.	Drywall	Double Dwelling Workshop	1.0	**14**
BLI-PS9	Red over green over peach over grey paint.	Wood	Double Dwelling Basement 2	1.0	2.0
BLI-PS10	Grey paint.	Concrete	Double Dwelling Basement 2	1.0	<1.0
BLI-PS11	Pink over dark pink paint.	Drywall	Double Dwelling Bedroom 3-2	1.0	**13**
BLI-PS12	White over white paint.	Wood Board	Double Dwelling Exterior	1.0	<1.0
BLI-PS-DUP1	Grey over red paint.	Concrete	Double Dwelling Basement 1	1.0	**11**

Notes:
RDL: Reportable detection limit
<X: Non-detect
HPA: Hazardous Products Act
BLI-PS-DUP1 is a duplicate of BLI-PS7.
Bold and underlined results indicate that mercury concentration is above the Federal HPA criterion of 10 mg/kg.
Shaded results indicate that mercury concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for mercury in soil at an industrial site (50 mg/kg).

Table C2-4: Paint Sample Descriptions and PCB Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total PCB (mg/kg)
BLI-PS7	Grey over red paint.	Concrete	Double Dwelling Basement 1	5.0	<5.0
BLI-PS10	Grey paint.	Concrete	Double Dwelling Basement 2	5.0	<5.0
BLI-PS12	White over white paint.	Wood Board	Double Dwelling Exterior	5.0	<5.0
BLI-PS-DUP1	Grey over red paint.	Concrete	Double Dwelling Basement 1	5.0	<5.0

Notes:
RDL: Reportable detection limit
<X: Non-detect
BLI-PS-DUP1 is a duplicate of BLI-PS7.
Shaded results indicate that PCB concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for PCBs in soil at an industrial site (50 mg/kg).

Table C2-5: Paint Sample Descriptions and Lead Leachate Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/L)	Lead Leachate (mg/L)
BLI-PS5	White over beige over yellow paint.	Drywall	Double Dwelling Bathroom 1	0.005	14
BLI-PS7	Grey over red paint.	Concrete	Double Dwelling Basement 1	0.005	9.6
BLI-PS8	Grey over blue over green over pink paint.	Drywall	Double Dwelling Workshop	0.005	6.9
BLI-PS9	Red over green over peach over grey paint.	Wood	Double Dwelling Basement 2	0.005	80
BLI-PS10	Grey paint.	Concrete	Double Dwelling Basement 2	0.005	75
BLI-PS11	Pink over dark pink paint.	Drywall	Double Dwelling Bedroom 3-2	0.005	38

Notes:
RDL: Reportable detection limit
<X: Non-detect
Shaded results indicate that lead leachate concentration is above the Provincial guidance document leachable toxic waste criterion for lead (5.00 mg/L).

Table C2-6: Bulk Sample Descriptions and PCB Analytical Results

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location (Room No.)	RDL (mg/kg)	Total PCB (mg/kg)
BLI-AS12	Caulking	Caulking (off-white) on ceramic tile (white) and painted drywall (pink) on interior wall.	Double Dwelling Bathroom 1	0.50	<0.50
BLI-AS18	Caulking	Caulking (white/grey) around window.	Double Dwelling Basement 1	0.50	<0.50
BLI-AS28	Caulking	Caulking (white/black) on painted wooden clapboard (white).	Double Dwelling Exterior	0.50	<0.50
BLI-AS29	Caulking	Caulking (white/grey) on painted wooden clapboard (white).	Double Dwelling Exterior	0.50	<0.50

Notes:
RDL: Reportable detection limit
<X: Non-detect
Shaded results indicate that PCB concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for PCBs in soil at an industrial site (50 mg/kg).
Bolded and underlined results indicate that PCB concentration is above the Provincial guidance document criterion for PCB solid (50 mg/kg).

Table C2-7: Mould Sample Descriptions and Direct Microscopic Examination Results

Sample ID	Sample Description	Sample Location (Room No.)	Mould Identified, in Rank Order	Mould Growth
BLI-MS2	Grey over blue over green over pink paint on drywall.	Double Dwelling Workshop	*Cladosporium* *Penicillium* *Acremonium*	Moderate to Abundant

Notes:

1. Mould growth is subjectively assessed with description terms sparse, moderate and abundant.
2. The presence of spores (lacking other fungal structures associated) is assessed as following:
   - a few spores (<10 spores average per microscopic field at 400X),
   - some spores (10 - 100 spores average per microscopic field at 400X),
   - many spores (> 100 spores average per microscopic field at 400X).
3. The presence of a few spores generally represents settled spores on the surface of the sample rather than indicating mould growth.
4. The results are only related to the samples analyzed.

SECTION 3.0 EXECUTIVE SUMMARY

Hazardous materials identified at the old equipment building during the demolition HMBA are summarized in Table E-3.

Table E-3: Hazardous Material Description

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Asbestos-Containing Drywall Joint Compound	NL Asbestos Abatement Regulations (Reg. 111/98)	Interior walls and ceilings	255 m^2	Asbestos-containing materials cannot be disposed of at a Construction & Demolition Site; however, these materials can be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Leachable Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Room 2 and Room 3 (lower half of walls)	53 m^2	These materials are considered hazardous wastes and must be disposed according to NL policy and the Solid Waste Management Authority by an approved hazardous waste disposal company and transported under the federal Transportation of Dangerous Goods (TDG) Act.
Lead and Mercury-Based Paint		Building interior and exterior	-	All painted materials that were sampled and analyzed for lead and mercury, with the exception of the materials containing leachable lead-based paint, may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Mould	Mould Guidelines for the Canadian Construction Industry, Canadian Construction Industry, 2004; Mould Abatement Guidelines, Environmental Abatement Council of Ontario (EACO), 2010	Building interior	Large amount of suspected mould on surfaces throughout building (>10 m^2)	All mould impacted materials may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Mercury-Containing Fluorescent Light Tubes	Federal Hazardous Products Act (R.S.1985, c. H-3)	Room 2	Two (2) light tubes.	These materials can be disposed of at a recycling facility.
Silica Dust	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2010	Concrete and drywall building materials	-	All concrete and drywall can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility.

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APPENDICES

3.0 OLD EQUIPMENT BUILDING

The old equipment building is located on the southwest point of Baccalieu Island (refer to Figures 1.1 and 1.2, Appendix A1 and Photos 2 to 5, Appendix B1). Based on information available on the Directory of Federal Real Property website, the old equipment building (Building No. 107184) on Baccalieu Island was constructed in 1953.

3.1 BUILDING DESCRIPTION

A description of the old equipment building is outlined in Table 3-1. Photographs of the old equipment building are provided in Appendix B3.

Table 3-1: Site Building Description

Building Name	Old Equipment Building	Photo (Appendix B3)
Number of Stories	One	Photos 1 and 2
Basement	No	None
Attic	Yes	Photos 16 and 18
Type of Structure	Wooden Frame	Photos 17 and 18
Type of Foundation	Painted Concrete	Photos 7 and 13
Exterior	Painted Wooden Siding	Photos 3 and 4
Window/Door Frames	Painted Wooden Frames/Metal Flashing	Photos 3 and 4
Exterior Doors	Wooden	Photo 6
Roofing Materials	Asphalt Shingles and Tar over Tar Paper	Photos 28 and 29
Interior Walls Finishes	Painted Drywall	Photos 5, 6, 8, 9 and 12
	Painted Plywood	Photos 9, 14 and 15
	Painted Wooden Baseboards/Trim	Photos 5 and 7
Ceiling Finishes	Painted Drywall	Photos 8, 10, 12 and 16
	Painted Press Board	Photo 8
Floor Finishes	Painted Concrete	Photos 7 and 13
Interior Doors	Wooden	Photo 11
Interior Lighting	Incandescent	Photos 8 and 18
	Fluorescent	Photo 10
Exterior Lighting	Unknown (explosion proof casing)	Photo 3
Heating	Electrical Baseboard Heater	Photo 5
Plumbing	None	None

3.2 FINDINGS

The findings documented in this section are based on observations made by Amec Foster Wheeler personnel at the time of the Site visit and laboratory analyses of samples collected from the old equipment building.

3.2.1 Asbestos-Containing Materials (ACMs)

There are over 3,000 ACMs that are commercially available, which can be divided into two broad categories: friable and non-friable. ACMs were discontinued from use in Canada in the late 1970s/early 1980s, although non-friable asbestos is still found in many more recent buildings.

A total of 11 building material samples (BLI-AS30 to BLI-AS40) were collected from the old equipment building and analyzed for asbestos content (refer to Photos 19 to 29, Appendix B3). It should be noted that select samples were separated into sub-samples representing distinct material layers and re-labeled by the laboratory prior to analysis. Sample descriptions and analytical results are summarized in Table C3-1, Appendix C3. Sample locations and analytical results are graphically illustrated in Figure 3.1, Appendix A3.

3.2.1.1 Friable Materials

Friable ACMs are defined as materials that can be crumbled, pulverized and reduced to powder when dry using hand pressure. Typical friable materials include acoustical or decorative spray applications, fireproofing and thermal insulation.

3.2.1.1.1 Spray-Applied Fireproofing, Insulation and Texture Finishes

There were no spray-applied fireproofing, insulation or texture finishes observed within the old equipment building during the Site visit; therefore, no samples of these materials were collected for analysis during this assessment.

3.2.1.2 Non-Friable and Potentially Friable Materials

Non-friable ACMs are hard or manufactured products such as floor tiles, fire blankets, pre-formed manufactured cementitious insulation and wallboards, pipes, and siding, wherein the asbestos fibres are bound to the substrate. Note that although a product may be considered non-friable when new, the product may release fine dust when disturbed (e.g., deterioration, removal, renovations) and the free dust is considered friable.

3.2.1.2.1 Ceiling Tile

There were no ceiling tiles observed in the old equipment building during the Site visit; therefore, no samples of ceiling tile were collected for analysis during this assessment.

3.2.1.2.2 Drywall Joint Compound

Painted drywall was observed on the walls and ceilings in the old equipment building. Four (4) samples of drywall joint compound (BLI-AS30, BLI-AS32, BLI-AS33 and BLI-AS38) were collected from interior and exterior walls and ceilings in Room 1, Room 2 and Room 3 and analyzed for asbestos content (refer to Photos 19, 21, 22 and 27, Appendix B3). Chrysotile asbestos (ranging from 2% to 3%) was detected in samples BLI-AS30, BLI-AS32, BLI-AS33 and BLI-AS38 at levels above the applicable *NL Asbestos Abatement Regulations (111/98)* (i.e., >1%) and therefore this material (i.e., drywall joint compound) is considered to be an ACM.

The condition of the drywall and associated joint compound visible throughout the old equipment building (covering an area of approximately 255 m^2) varied from fair to poor condition.

3.2.1.2.3 Vinyl Flooring Products and Mastics

There was no vinyl flooring products and associated mastics observed in the old equipment building during the Site visit; therefore, no samples of these types of materials were collected for analysis during this assessment.

3.2.1.2.4 Baseboard, Carpet and Stair Tread Adhesives/Mastics

There were no baseboard, carpet or stair tread adhesives/mastics observed in the old equipment building during the Site visit; therefore, no samples of these types of adhesives/ mastics were collected for analysis during this assessment.

3.2.1.2.5 Roofing Products

The roofing materials on the old equipment building consist of asphalt shingles, tar, tar paper and caulking. One (1) sample of asphalt shingle (red/black) with tar (black) (BLI-AS39) and one (1) sample of tar paper (black) and caulking (white) (BLI-AS40) were collected from the roof of the old equipment building and analyzed for asbestos content (refer to Photos 28 and 29, Appendix B3). Asbestos was not detected in the roofing material samples.

3.2.1.2.6 Thermal System Insulation

Two (2) samples of fibreglass insulation (pink and beige) with black/brown paper wrap backing (BLI-AS31 and BLI-AS34) were collected from an exterior wall and the ceiling in Room 3 and analyzed for asbestos content (refer to Photos 20 and 23, Appendix B3). Note: prior to asbestos analysis, the laboratory separated sample BLI-AS31 into sub-samples of insulation and backing (i.e. BLI-AS31-Insulation, BLI-AS31-Backing). Asbestos was not detected in the fibreglass insulation and paper wrap backing sample or sub-samples.

3.2.1.2.7 Weather Stripping and Caulking

There was no weather stripping observed on the exterior of the old equipment building during the Site visit; therefore, no samples of weather stripping were collected for analysis during this assessment.

Two (2) samples of caulking (white and grey/white) (BLI-AS35 and BLI-AS37) were collected from around windows on the exterior of the old equipment building and analyzed for asbestos content (refer to Photos 24 and 26, Appendix B3). Chrysotile asbestos (ranging from 0.30% to 0.40%) was detected in samples BLI-AS35 and BLI-AS37 at levels below the applicable *NL Asbestos Abatement Regulations (111/98)* (i.e., >1%).

3.2.1.2.8 Mortar, Grout and Other Cementitious Materials

There was no mortar, grout or other suspected cementitious ACMs observed within the old equipment building during the Site visit; therefore, no samples of these materials were collected for analysis during this assessment.

3.2.1.2.9 Other Potential ACMs

One (1) sample of tar paper (BLI-AS36) was collected from the exterior of the old equipment building and analyzed for asbestos content (refer to Photo 25, Appendix B3). Chrysotile asbestos (<0.25%) was detected in sample BLI-AS36 at a level below the applicable *NL Asbestos Abatement Regulations (111/98)* (i.e., >1%).

Other potential ACMs were observed and were not sampled due to the nature of the materials and/or hazards associated with sampling these materials. These materials included, but are not limited to, electrical and mechanical components and insulators such as wiring and gaskets inside electrical panels, electronic and/or mechanical equipment (refer to Photos 41 and 42, Appendix B3). Other possible hidden and inaccessible ACMs have the potential to be present at the Site but were not identified during the Site visit. These possible ACMs could include fire rated structures or building materials and underground infrastructure and piping.

3.2.2 Paint Additives

Lead compounds have been used in paint as pigment and durability additives since the early 1800s. Mercury compounds have been used in paint as anti-microbial additives up until the 1990s. PCBs have been used in paint as plasticizers and corrosion resistance additives from the 1950s to the 1970s.

The condition of the paint visible throughout the old equipment building varied from fair to poor condition. Areas of peeling and flaking paint and mould impacted and damaged drywall were observed in various locations throughout the interior of the old equipment building (refer to Photos 5 to 17, Appendix B3).

A total of 11 samples (BLI-PS13 to BLI-PS23) plus two (2) field duplicates (BLI-PS-DUP2; duplicate of BLI-PS16 and BLI-PS-DUP3; duplicate of BLI-PS23) were collected from painted surfaces of the old equipment building and analyzed for lead and mercury content (refer to Photos 30 to 40, Appendix B3). Seven (7) paint samples (BLI-PS15, BLI-PS16, BLI-PS18, BLI-PS19, BLI-PS20, BLI-PS21 and BLI-PS22) were also analyzed for PCB content. Sample descriptions and analytical results are summarized in Tables C3-2 to C3-4, Appendix C3. Sample locations and analytical results are graphically illustrated in Figure 3.1, Appendix A3.

Since the concentrations of lead detected in four (4) paint samples (BLI-PS13, BLI-PS14, BLI-PS17 and BLI-PS20) exceeded the former Federal HPA criterion of 5,000 mg/kg, these paint samples were also tested for lead leachate using the TCLP to determine whether or not the paint would be considered hazardous waste upon removal from the Site. The laboratory results for lead leachate in paint are presented in Table C3-5, Appendix C3.

3.2.2.1 Lead in Paint

The concentrations of lead in the paint samples ranged from 130 mg/kg to 20,000 mg/kg (refer to Table C3-2, Appendix C3). Seven (7) paint samples (BLI-PS15, BLI-PS16, BLI-PS18, BLI-PS19, BLI-PS21, BLI-PS22 and BLI-PS23), plus two (2) field duplicates (BLI-PS-DUP2; duplicate of BLI-PS16 and BLI-PS-DUP3; duplicate of BLI-PS23), contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg (refer to Photos 32, 33, 35, 36, 38, 39 and 40, Appendix B3). Four (4) paint samples (BLI-PS13, BLI-PS14, BLI-PS17 and BLI-PS20) contained lead at concentrations above the former Federal HPA criterion of 5,000 mg/kg (refer to Photos 30, 31, 34 and 37, Appendix B3).

3.2.2.2 Leachable Lead in Paint

The concentrations of leachable lead in paint samples BLI-PS14 (4.7 mg/L), BLI-PS17 (0.35 mg/L) and BLI-PS20 (4.1 mg/L) were below the Schedule II leachate criterion for lead (5.00 mg/L) provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* (refer to Table C3-5, Appendix C3). Paint sample BLI-PS14 (white paint) was collected from drywall on an exterior wall and paint sample BLI-PS17 (off-white paint) was collected from drywall on the upper ceiling in Room 3. Paint sample BLI-PS20 (red over grey paint) was collected from the concrete foundation of the old equipment building. Since the concentrations of leachable lead in these paint samples are at levels that are not considered to be hazardous, any building materials containing these paints can be disposed of at an approved landfill facility, pending Provincial regulatory and landfill operator approval.

The concentration of leachable lead in paint sample BLI-PS13 (16 mg/L) was above the Schedule II leachate criterion for lead (5.00 mg/L) provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* (refer to Table C3-5, Appendix C3). Paint sample BLI-PS13 (grey over white over green paint) was collected from drywall on an exterior wall in Room 3. The paint on the walls in Room 3 was generally in poor condition (i.e. flaking) and impacted by mould. The paint on the the lower half of the walls in Room 3 appeared to be the same colour as the paint on the lower half of the walls in Room 2. The paint on the lower half of the walls in Room 2 and Room 3 covers an area of approximately 53 m^2. Since the concentration of leachable lead in this paint sample is at a level considered to be hazardous, building materials (and any debris) containing these paint layers, if removed from the Site, must be disposed of at a hazardous waste treatment facility.

3.2.2.3 Mercury in Paint

The concentrations of mercury in the paint samples ranged from non-detect (<1.0 mg/kg) to 15 mg/kg (refer to Table C3-3, Appendix C3). One (1) paint sample (BLI-PS14), plus one (1) field duplicate sample (BLI-PS-DUP3; duplicate of BLI-PS23), contained mercury at concentrations above the Federal HPA criterion of 10 mg/kg but below the CCME CSQG of 50 mg/kg for mercury in soil at an industrial site (refer to Photos 31 and 40, Appendix B3). The other 10 paint

samples, plus one (1) field duplicate sample (BLI-PS-DUP2; duplicate of BLI-PS16), analyzed were either non-detect for mercury (i.e. <1.0 mg/kg) or contained mercury at concentrations below the applicable Federal HPA criterion (i.e. 10 mg/kg).

3.2.2.4 PCBs in Paint

The seven (7) paint samples (BLI-PS15, BLI-PS16, BLI-PS18, BLI-PS19, BLI-PS20, BLI-PS21 and BLI-PS22) analyzed for PCBs were non-detect (<5.0 mg/kg) and therefore did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* (refer to Table C3-4, Appendix C3).

3.2.3 PCBs in Caulking

According to the USEPA, PCBs may be present in caulking used in windows, door frames, masonry columns and other building materials in buildings built or renovated between 1950 and 1979. Since the old equipment building was constructed in 1953, two (2) samples of caulking (BLI-AS35 and BLI-AS37) were collected from exterior surfaces of the building and analyzed for PCB content (refer to Photos 24 and 26, Appendix B3).

The two (2) caulking samples (BLI-AS35 and BLI-AS37) analyzed for PCBs were either non-detect (<0.5 mg/kg) or contained PCBs at a concentration below the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* (refer to Table C3-6, Appendix C3).

3.2.4 Urea Formaldehyde Foam Insulation (UFFI)

Visual indicators suggesting the potential presence of UFFI were not observed in the old equipment building. The nature of the insulation in the walls and ceilings throughout the old equipment building could not be confirmed at the time of the Site inspection. However, fibreglass insulation was observed in the ceiling and exterior wall cavities in some areas of the building (refer to Photos 20 and 23, Appendix B3). Since the old equipment building was constructed in 1953, it is possible that UFFI may be present in some areas of the building that were not investigated during the intrusive cavity inspections.

The CMHC state that “tests show that UFFI is not a source of over-exposure to formaldehyde after the initial curing and release of excess gas”. The general view based on studies concerning formaldehyde emissions is that as a product ages, the amount of formaldehyde off-gassed from the product decreases over time. The amount of formaldehyde released is reportedly dependant on temperature, humidity and whether or not the product is exposed to excessive moisture or water. According to the USEPA, increases in temperature, humidity and moisture conditions can cause increases in the amount of formaldehyde released from newer products that are considered to be sources of formaldehyde emissions. The USEPA report that

"studies show that formaldehyde emissions from UFFI decline with time; therefore, homes in which UFFI was installed many years ago are unlikely to have high levels of formaldehyde now".

3.2.5 Suspected Visible Mould Growth (SVG)

Amec Foster Wheeler inspected the interior areas of the old equipment building for visual or olfactory evidence of suspected mould. Peeling, flaking and cracking paint that can be a result of building materials compromised by moisture was observed on the walls, ceilings and floors of the old equipment building (refer to Photos 8 and 13, Appendix B3). Areas of SVG, collapsed and deteriorated drywall, and water damage were observed on the interior surfaces of the building (refer to Photos 10, 15 and 17, Appendix B3).

One (1) sample of painted drywall (BLI-MS1) with SVG was collected from the ceiling in Room 1 and analyzed for mould growth (refer to Figure 3.1, Appendix A3 and Photo 40, Appendix B3). The laboratory results confirmed that abundant mould growth was present in the sample (refer to Table C3-7, Appendix C3). The types of mould identified in the sample were *Cladosporium*, *Acremonium* and *Aspergillus/Penicillium* (a few spores).

3.2.6 Mercury-Containing Thermostats

There were no thermostats observed in the old equipment building during the Site visit. Therefore, no thermostats were inspected for the presence of mercury-containing switches.

3.2.7 PCB-Containing Light Ballasts

There was one (1) fluorescent light fixture observed on the ceiling in Room 2 of the old equipment building during the Site visit (refer to Photo 10, Appendix B3). The light ballast(s) in the light fixture could not be inspected for the presence or absence of PCB-containing dielectric fluid due to height restrictions and safety concerns. Since it could not be determined from the inspection if the ballast(s) are either non-PCB or potential-PCB, all fluorescent light ballasts within the old equipment building should be treated as PCB-containing ballasts.

3.2.8 Potential Sources of ODSs and Halocarbons

No potential sources of ODSs were identified in the old equipment building during this assessment.

3.2.9 Petroleum Storage Tanks

No petroleum ASTs were identified inside the old equipment building during this assessment.

3.2.10 Other Potentially Hazardous Building Materials or Substances

Other potentially hazardous building materials or substances identified during this assessment are presented in the following sections.

3.2.10.1 Mercury

Mercury may be present in the fluorescent light tubes in the old equipment building. The light tubes in fluorescent light fixtures often contain limited quantities of mercury in a powder or vapour form.

3.2.10.2 Lead

Lead is typically associated with plumbing solder and older pipe materials (e.g., cast iron pipe joints), as well as products such as radiation protective shielding and lead-acid batteries.

No potential sources of lead were identified in the old equipment building during this assessment.

3.2.10.3 Silica

Silica is expected to be present in concrete and drywall building materials used to construct the old equipment building.

3.3 CONCLUSIONS AND RECOMMENDATIONS

Based on observations made and information gathered during this HMBA, the following conclusions and recommendations are made with respect to the potential and actual presence of hazardous building materials at the old equipment building:

- **<u>Asbestos-Containing Materials (ACMs)</u>**
    - Building materials containing greater than 1% asbestos by dry weight, which are considered to be ACMs, are present in the form of potentially friable drywall joint compound. The condition of drywall and associated joint compound visible throughout the old equipment building varied from fair to poor condition; therefore, priority should be given to the removal of any deteriorated joint compound and associated debris inside the old equipment building.
    - Building materials containing less than 1% asbestos by dry weight are present in the form of tar paper and caulking.
    - Other potential ACMs were observed and were not sampled due to the nature of the materials and/or hazards associated with sampling these materials. These materials included, but are not limited to, electrical and mechanical components and insulators such as wiring and gaskets inside electrical panels, and electronic and/or mechanical equipment.
    - Other possible hidden and inaccessible ACMs have the potential to be present at the Site but were not identified during the Site visit. These possible ACMs could include fire rated structures or building materials and underground infrastructure and piping.

- If other potential ACMs that were not sampled as part of this assessment are encountered in the future, these materials should be treated as ACMs or samples should be collected and tested to verify asbestos content. This should be done as soon as these materials are encountered and before these materials are disturbed. This includes materials that are currently concealed by walls and ceiling systems.
- In accordance with the *NL Asbestos Abatement Regulations (Reg. 111/98)*, which provide the legislative requirements for safe handling of ACMs in workplaces in the Province of NL, the following is recommended:
  - Safe work procedures shall be established.
  - All buildings constructed during the period when asbestos was readily used in construction must have a written assessment and management plan (where applicable) for potential ACMs.
  - Prior to general disturbance activity (e.g., demolition, renovation or removal), all ACMs must be safely removed from the old equipment building and disposed of in accordance with appropriate environmental guidelines by an asbestos abatement contractor registered with the Department of Labour, Occupational Health and Safety Branch.
- Prior to demolition, ACMs in good condition should be inspected on an annual basis. ACMs in poor condition should be removed from the old equipment building and transported off-site for proper disposal in accordance with the *NL Asbestos Abatement Regulations (Reg. 111/98)*.
- ACMs can be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.

- **<u>Lead, Mercury and PCBs in Paint</u>**
  - Seven (7) paint samples contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg and four (4) paint samples contained lead at concentrations above the former Federal HPA criterion of 5,000 mg/kg. These paints are considered to be lead-based paints that are regulated under the Federal Surface Coating Materials Regulations.
  - The concentration of leachable lead in the following paint sample was above the Schedule II leachate criterion for lead (5.00 mg/L) provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* and is therefore at a level considered to be hazardous:
    - Grey over white over green paint (16 mg/L) collected from drywall on an exterior wall in Room 3.
  - Any building materials containing these lead leachable paints, if removed from the Site, must be disposed of at a hazardous waste treatment facility.

- One (1) paint sample plus one (1) duplicate paint sample, collected from a separate location, contained mercury at concentrations above the Federal HPA criterion of 10 mg/kg but below the CCME CSQG of 50 mg/kg for mercury in soil at an industrial site. These paints are considered to be mercury-based paints that are regulated under the Federal Surface Coating Materials Regulations. Ten (10) paint samples, plus one (1) duplicate paint sample, were either non-detect for mercury (i.e. <1.0 mg/kg) or contained mercury at concentrations below the applicable Federal HPA criterion (i.e. 10 mg/kg).
- PCBs were not detected above the reportable detection limit (5.0 mg/kg) in the seven (7) paint samples analyzed and therefore the concentrations of PCBs in these samples did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)*.
- Results of the paint sampling and analytical program revealed lead and mercury-based paint finishes on the interior and exterior of the old equipment building (i.e., the concentrations of lead and mercury in some paint finishes were above the applicable Federal HPA criteria of 90 mg/kg for lead and 10 mg/kg for mercury). There are potential adverse human health impacts associated with disturbing (e.g., scraping) lead and mercury-based paint finishes. Due to the high concentrations of lead identified in some paint on the interior and in the paint on the exterior of the old equipment building, a lead abatement contractor should be utilized for decommissioning/demolition activities.
- If potential lead, mercury or PCB containing paint finishes that were not sampled during this assessment are encountered in future, samples should be obtained and tested to verify lead, mercury and PCB content. This should be done as soon as the paint is encountered and before it is disturbed. This includes materials that are currently concealed by walls and ceiling systems.

- **<u>PCBs in Caulking</u>**
  - The two (2) caulking samples analyzed for PCBs were either non-detect (<0.5 mg/kg) or contained PCBs at a concentration below the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)*.

- **<u>Urea Formaldehyde Foam Insulation (UFFI)</u>**
  - Based on a visual intrusive inspection, there was no evidence that UFFI is present in this structure. However, the inferred age of the old equipment building suggests that UFFI could be present in some areas of the building that were not investigated during the intrusive cavity inspections. Based on the sources of information reviewed by Amec Foster Wheeler to assess whether UFFI is considered to be a potential environmental concern (refer to Sections 1.5.3 and 3.2.4), it can be inferred that any UFFI present within the old equipment building is unlikely to affect the indoor air quality due to the amount of time that has passed since the insulation was likely installed (i.e. prior to 1980) along with the

likelihood that formaldehyde has off-gassed over this period of time. It should be noted that, the presence and concentration of formaldehyde cannot be determined or quantified without conducting Site-specific testing for formaldehyde.

- **Mould**
  - Peeling, flaking and cracking paint that can be a result of building materials compromised by moisture was observed on the walls, ceilings and floors of the old equipment building. Areas of SVG, collapsed and deteriorated drywall, and water damage were observed on the interior surfaces of the building.
  - The laboratory results for one (1) sample of painted drywall with SVG collected from Room 1 confirmed that abundant mould growth (*Cladosporium*, *Acremonium*, *Aspergillus/Penicillium*) was present in the sample.
  - Existing conditions in the old equipment building (e.g., roof and window leaks, improper ventilation, inadequate building heating, prolonged periods of increased moisture, areas open to the environment) may potentially contribute to or enhance mould growth inside the building.
  - Workers on-Site should don proper personal protective equipment (PPE) to prevent/reduce exposure to mould while working within the old equipment building or during any disturbance/demolition of building materials that may be impacted by mould growth.
  - It should be noted that asbestos may be present in drywall joint compound in areas where mould is present on drywall.
- **Mercury-Containing Materials/Equipment**
  - Suspected mercury-containing fluorescent light tubes were observed in Room 2 of the old equipment building.
  - The disturbance, control or disposal of mercury-containing material/equipment (e.g., light tubes) should be carried out in accordance with applicable criteria/regulations (refer to Section 1.4). The presence/absence of mercury in these materials should be confirmed through a contractor or consultant prior to disturbance or disposal of these materials. Typically these materials are sent to a recycling or hazardous waste disposal facility and not a landfill.
  - Mercury-containing fluorescent light tubes should be removed intact and returned to the manufacturer for recycling, or disposed of at an approved hazardous waste disposal facility.
- **Silica Dust**
  - Silica is expected to be present in concrete and drywall building materials used to construct the old equipment building.
  - Precautions should be taken to prevent/reduce exposure to silica dust during any disturbance/demolition of silica-containing products, such as wetting the surface of the materials to prevent dust emissions, donning respiratory protection, and cleaning tools and clothing prior to exiting the work area.

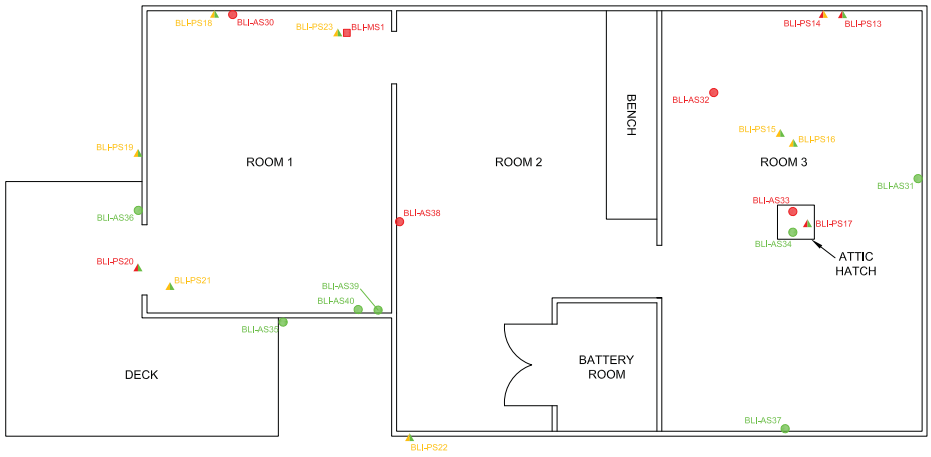
Hazardous materials identified at the old equipment building during this HBMA are summarized in Table 3-2.

Table 3-2: Hazardous Material Description

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Asbestos-Containing Drywall Joint Compound	NL Asbestos Abatement Regulations (Reg. 111/98)	Interior walls and ceilings	255 m^2	Asbestos-containing materials cannot be disposed of at a Construction & Demolition Site; however, these materials can be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Leachable Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1);	Room 2 and Room 3 (lower half of walls)	53 m^2	These materials are considered hazardous wastes and must be disposed according to NL policy and the Solid Waste Management Authority by an approved hazardous waste disposal company and transported under the federal Transportation of Dangerous Goods (TDG) Act.
Lead and Mercury-Based Paint	Federal Transportation of Dangerous Goods Act (1992, c. 34)	Building interior and exterior	-	All painted materials that were sampled and analyzed for lead and mercury, with the exception of the materials containing leachable lead-based paint, may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Mould	Mould Guidelines for the Canadian Construction Industry, Canadian Construction Industry, 2004; Mould Abatement Guidelines, Environmental Abatement Council of Ontario (EACO), 2010	Building interior	Large amount of suspected mould on surfaces throughout building (>10 m^2)	All mould impacted materials may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Mercury-Containing Fluorescent Light Tubes	Federal Hazardous Products Act (R.S.1985, c. H-3)	Room 2	Two (2) light tubes.	These materials can be disposed of at a recycling facility.
Silica Dust	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2010	Concrete and drywall building materials	-	All concrete and drywall can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility.

APPENDIX A3

FIGURES



LEGEND:

- PAINT SAMPLE LOCATION - RESULTS EXCEED 90 mg/kg AND LESS THAN 5000 mg/kg FOR LEAD AND NO CRITERIA EXCEEDANCE FOR MERCURY
- PAINT SAMPLE LOCATION - RESULTS EXCEED 5000 mg/kg FOR LEAD AND NO EXCEEDANCES FOR MERCURY
- ASBESTOS SAMPLE LOCATION - ASBESTOS NOT DETECTED OR RESULTS < 1% FOR ASBESTOS
- ASBESTOS SAMPLE LOCATION - RESULTS > 1% FOR ASBESTOS
- MOULD SAMPLE LOCATION - ABUNDANT MOULD GROWTH DETECTED

NOTE:

1. DO NOT SCALE FROM FIGURE.
2. THIS FIGURE IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION OF THE STUDY AREA IN SUPPORT OF THIS REPORT.
3. ALL LOCATIONS, DIMENSIONS, AND ORIENTATIONS ARE APPROXIMATE.
4. THIS FIGURE SHOULD NOT BE USED FOR PURPOSES OTHER THAN THOSE OUTLINED ABOVE.
5. THIS FIGURE CONTAINS INTELLECTUAL PROPERTY OF PUBLIC WORKS AND GOVERNMENT SERVICES CANADA AND MAY NOT BE REPRODUCED OR COPIED WITHOUT THEIR WRITTEN CONSENT.
6. THIS FIGURE WAS PRODUCED USING FIELD NOTES AND FIGURES PROVIDED BY PUBLIC WORKS AND GOVERNMENT SERVICES CANADA.

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SCALE: NTS

PROJECT: DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT AND INVENTORY, BACCALIEU ISLAND LIGHTSTATION (DFRP 80521), BACCALIEU ISLAND, NL

TITLE: SAMPLE LOCATION PLAN - OLD EQUIPMENT BUILDING

DATE: February 2015
PROJECT No.: TF14076579
REV. No.: 0
FIGURE No.: 3.1

APPENDIX B3

PHOTOGRAPHIC RECORD

Photo 1: View of old equipment building (next to helicopter landing pad and walkway).

Photo 2: View of old equipment building (next to helicopter landing pad and walkway).

Photo 3: View of north side of old equipment building.

Photo 4: View of north side of old equipment building.

Photo 5: View of Room 1 in old equipment building.

Photo 6: View of Room 1 in old equipment building.

Photo 7: View of Room 1 in old equipment building.

Photo 8: View of Room 1 in old equipment building.

Photo 9: View of Room 2 in old equipment building.

Photo 10: View of Room 2 in old equipment building. Note: fluorescent light fixture.

Photo 11: View of Battery Room in old equipment building.

Photo 12: View of Room 3 in old equipment building.

Photo 13: View of Room 3 in old equipment building.

Photo 14: View of Room 3 in old equipment building.

Photo 15: View of Room 3 in old equipment building.

Photo 16: View of access hatches to double ceiling area/attic in old equipment building.

Photo 17: View of double ceiling area in old equipment building.

Photo 18: View of attic in old equipment building.

Photo 19: View of drywall joint compound sample BLI-AS30.

Photo 20: View of insulation and paper wrap sample BLI-AS31.

Photo 21: View of drywall joint compound sample BLI-AS32.


Photo 22: View of drywall joint compound sample BLI-AS33.


Photo 23: View of insulation and paper wrap sample BLI-AS34.


Photo 24: View of caulking sample BLI-AS35

Photo 25: View of tar paper sample BLI-AS36.

Photo 26: View of caulking sample BLI-AS37

Photo 27: View of drywall joint compound sample BLI-AS38.

Photo 28: View of asphalt shingle sample BLI-AS39.

Photo 29: View of tar paper and caulking sample BLI-AS40.

Photo 30: View of paint sample BLI-PS13.

Photo 31: View of paint sample BLI-PS14.


Photo 32: View of paint sample BLI-PS15.


Photo 33: View of paint sample BLI-PS16.


Photo 34: View of paint sample BLI-PS17.


Photo 35: View of paint sample BLI-PS18.

Photo 36: View of paint sample BLI-PS19.

Photo 37: View of paint sample BLI-PS20.

Photo 38: View of paint sample BLI-PS21.

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Photo 39: View of paint sample BLI-PS22.

Photo 40: View of paint sample BLI-PS23 and location of mould sample BLI-MS1.

Photo 41: View of electrical panel in Room 1.

Photo 42: View of items and equipment stored in attic.

APPENDIX C3

SAMPLE AND ANALYTICAL SUMMARY TABLES

Table C3-1: Bulk Sample Descriptions and Asbestos Analytical Results

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location (Room No.)	Analytical Result
BLI-AS30	Drywall Joint Compound	Drywall joint compound (beige) on painted exterior wall (white).	Old Equipment Building Room 1	3% Chrysotile
BLI-AS31-Insulation	Insulation	Fibreglass insulation (pink) in exterior wall.	Old Equipment Building Room 3	ND
BLI-AS31-Backing	Paper Wrap	Paper wrap (brown/black) on fibreglass insulation (pink).	Old Equipment Building Room 3	ND
BLI-AS32	Drywall Joint Compound	Drywall joint compound (beige) on painted lower ceiling (white).	Old Equipment Building Room 3	2% Chrysotile
BLI-AS33	Drywall Joint Compound	Drywall joint compound (beige) on painted upper ceiling (white).	Old Equipment Building Room 3	3% Chrysotile
BLI-AS34	Insulation	Fibreglass insulation (beige) with paper wrap (brown/black) in upper ceiling.	Old Equipment Building Room 3	ND
BLI-AS35	Caulking	Caulking (white) around window.	Old Equipment Building Exterior	0.30% Chrysotile
BLI-AS36	Tar Paper	Tar paper (black).	Old Equipment Building Exterior	<0.25% Chrysotile
BLI-AS37	Caulking	Caulking (grey/white) around window.	Old Equipment Building Exterior	0.40% Chrysotile
BLI-AS38	Drywall Joint Compound	Drywall joint compound (beige) on painted interior wall (grey).	Old Equipment Building Room 2	3% Chrysotile

Notes:
ND: Non-detect
ND = <1% asbestos
Shaded results greater than 1% asbestos by dry weight are considered to be asbestos-containing materials (ACMs) as outlined in the Newfoundland and Labrador Asbestos Abatement Regulations (Reg. 111/98)

Table C3-1: Bulk Sample Descriptions and Asbestos Analytical Results (Continued)

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location (Room No.)	Analytical Result
BLI-AS39	Asphalt Shingle and Tar	Asphalt shingle (red/black) with tar (black).	Old Equipment Building Exterior	ND
BLI-AS40	Tar Paper and Caulking	Tar paper (black) and caulking (white).	Old Equipment Building Exterior	ND

Notes:
ND: Non-detect
ND = <1% asbestos
Shaded results greater than 1% asbestos by dry weight are considered to be asbestos-containing materials (ACMs) as outlined in the Newfoundland and Labrador Asbestos Abatement Regulations (Reg. 111/98)

Table C3-2: Paint Sample Descriptions and Lead Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Lead (mg/kg)
BLI-PS13	Grey over white over green paint.	Drywall	Equipment Building Room 3	5.0	**18,000**
BLI-PS14	White paint.	Drywall	Equipment Building Room 3	5.0	**7,100**
BLI-PS15	Multiple layers of red over grey paint.	Concrete	Equipment Building Room 3	5.0	**3,600**
BLI-PS16	Multiple layers of grey paint.	Concrete	Equipment Building Room 3	5.0	**2,400**
BLI-PS17	Off-white paint.	Drywall	Equipment Building Room 3	5.0	**20,000**
BLI-PS18	Grey over light grey over beige paint.	Wood	Equipment Building Room 1	5.0	**2,500**
BLI-PS19	White over white over black paint.	Wood	Equipment Building Exterior	5.0	**3,400**
BLI-PS20	Red over grey paint.	Concrete	Equipment Building Exterior	5.0	**11,000**
BLI-PS21	Grey over red paint.	Concrete	Equipment Building Room 1	5.0	**1,300**
BLI-PS22	White paint.	Wood	Equipment Building Exterior	5.0	**2,100**
BLI-PS23	White paint.	Drywall	Equipment Building Room 1	5.0	**640**
BLI-PS-DUP2	Multiple layers of grey paint.	Concrete	Equipment Building Room 3	5.0	**2,000**
BLI-PS-DUP3	White paint.	Drywall	Equipment Building Room 1	5.0	**130**

Notes:
RDL: Reportable detection limit
<X: Non-detect
HPA: Hazardous Products Act
BLI-PS-DUP2 is a duplicate of BLI-PS16.
BLI-PS-DUP3 is a duplicate of BLI-PS23.
Bold and underlined results indicate that lead concentration is above the Federal HPA criterion of 90 mg/kg.
Shaded results indicate that lead concentration is above the former Federal HPA criterion of 5,000 mg/kg.

Table C3-3: Paint Sample Descriptions and Mercury Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Mercury (mg/kg)
BLI-PS13	Grey over white over green paint.	Drywall	Equipment Building Room 3	1.0	2.3
BLI-PS14	White paint.	Drywall	Equipment Building Room 3	1.0	**15**
BLI-PS15	Multiple layers of red over grey paint.	Concrete	Equipment Building Room 3	1.0	7.1
BLI-PS16	Multiple layers of grey paint.	Concrete	Equipment Building Room 3	1.0	6.4
BLI-PS17	Off-white paint.	Drywall	Equipment Building Room 3	1.0	7.9
BLI-PS18	Grey over light grey over beige paint.	Wood	Equipment Building Room 1	1.0	3.4
BLI-PS19	White over white over black paint.	Wood	Equipment Building Exterior	1.0	6.2
BLI-PS20	Red over grey paint.	Concrete	Equipment Building Exterior	1.0	<1.0
BLI-PS21	Grey over red paint.	Concrete	Equipment Building Room 1	1.0	2.7
BLI-PS22	White paint.	Wood	Equipment Building Exterior	1.0	6.3
BLI-PS23	White paint.	Drywall	Equipment Building Room 1	1.0	8.8
BLI-PS-DUP2	Multiple layers of grey paint.	Concrete	Equipment Building Room 3	1.0	4.3
BLI-PS-DUP3	White paint.	Drywall	Equipment Building Room 1	1.0	**11**

Notes:
RDL: Reportable detection limit
<X: Non-detect
HPA: Hazardous Products Act
BLI-PS-DUP2 is a duplicate of BLI-PS16.
BLI-PS-DUP3 is a duplicate of BLI-PS23.
Bold and underlined results indicate that mercury concentration is above the Federal HPA criterion of 10 mg/kg.
Shaded results indicate that mercury concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for mercury in soil at an industrial site (50 mg/kg).

Table C3-4: Paint Sample Descriptions and PCB Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total PCB (mg/kg)
BLI-PS15	Multiple layers of red over grey paint.	Concrete	Equipment Building Room 3	10.0	<10
BLI-PS16	Multiple layers of grey paint.	Concrete	Equipment Building Room 3	5.0	<5.0
BLI-PS18	Grey over light grey over beige paint.	Wood	Equipment Building Room 1	5.0	<5.0
BLI-PS19	White over white over black paint.	Wood	Equipment Building Exterior	5.0	<5.0
BLI-PS20	Red over grey paint.	Concrete	Equipment Building Exterior	5.0	<5.0
BLI-PS21	Grey over red paint.	Concrete	Equipment Building Room 1	5.0	<5.0
BLI-PS22	White paint.	Wood	Equipment Building Exterior	5.0	<5.0

Notes:

RDL: Reportable detection limit

<X: Non-detect

Shaded results indicate that PCB concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for PCBs in soil at an industrial site (50 mg/kg).

Table C3-5: Paint Sample Descriptions and Lead Leachate Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/L)	Lead Leachate (mg/L)
BLI-PS13	Grey over white over green paint.	Drywall	Equipment Building Room 3	0.005	16
BLI-PS14	White paint.	Drywall	Equipment Building Room 3	0.005	4.7
BLI-PS17	Off-white paint.	Drywall	Equipment Building Room 3	0.005	0.35
BLI-PS20	Red over grey paint.	Concrete	Equipment Building Exterior	0.005	4.1

Notes:
RDL: Reportable detection limit
<X: Non-detect
Shaded results indicate that lead leachate concentration is above the Provincial guidance document leachable toxic waste criterion for lead (5.00 mg/L).

Table C3-6: Bulk Sample Descriptions and PCB Analytical Results

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location (Room No.)	RDL (mg/kg)	Total PCB (mg/kg)
BLI-AS35	Caulking	Caulking (white) around window.	Old Equipment Building Exterior	0.50	0.51
BLI-AS37	Caulking	Caulking (grey/white) around window.	Old Equipment Building Exterior	0.50	<0.50

Notes:
RDL: Reportable detection limit
<X: Non-detect
Shaded results indicate that PCB concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for PCBs in soil at an industrial site (50 mg/kg).
Bolded and underlined results indicate that PCB concentration is above the Provincial guidance document criterion for PCB solid (50 mg/kg).

Table C3-7: Mould Sample Descriptions and Direct Microscopic Examination Results

Sample ID	Sample Description	Sample Location (Room No.)	Mould Identified, in Rank Order	Mould Growth
BLI-MS1	White paint on drywall.	Equipment Building Room 1	*Cladosporium* *Acremonium* *Aspergillus/Penicillium (a few spores)*	Abundant

Notes:

1. Mould growth is subjectively assessed with description terms sparse, moderate and abundant.
2. The presence of spores (lacking other fungal structures associated) is assessed as following:
   - a few spores (<10 spores average per microscopic field at 400X),
   - some spores (10 - 100 spores average per microscopic field at 400X),
   - many spores (> 100 spores average per microscopic field at 400X).
3. The presence of a few spores generally represents settled spores on the surface of the sample rather than indicating mould growth.
4. The results are only related to the samples analyzed.

SECTION 4.0 EXECUTIVE SUMMARY

Hazardous materials identified at the upper winch house during the demolition HMBA are summarized in Table E-4.

Table E-4: Hazardous Material Description

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Building interior and exterior	-	All painted materials that were sampled and analyzed for lead may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Silica Dust	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2010	Concrete building materials	-	All concrete can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility.

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APPENDICES

4.0 UPPER WINCH HOUSE

The upper winch house is located on the southwest point of Baccalieu Island (refer to Figures 1.1 and 1.2, Appendix A1 and Photos 2 and 4, Appendix B1). The date that the upper winch house was constructed on Baccalieu Island is not known; however, based on similar building materials, the winch house may have been constructed around the same time as the double dwelling and old equipment building (i.e. 1953-1955).

4.1 BUILDING DESCRIPTION

A description of the upper winch house is outlined in Table 4-1. Photographs of the upper winch house are provided in Appendix B4.

Table 4-1: Site Building Description

Building Name	Upper Winch House	Photo (Appendix B4)
Number of Stories	One	Photo 1
Basement	No	None
Attic	No	None
Type of Structure	Wooden Frame	Photos 5, 7 and 9
Type of Foundation	Painted Concrete	Photo 8
Exterior	Painted Wooden Siding	Photos 1 to 6
Window/Door Frames	Painted Wooden Frames	Photo 2
Exterior Doors	Wooden	Photo 2
Roofing Materials	Asphalt Shingles and Tar	Photos 3 and 10
Interior Walls Finishes	Unfinished with Some Painted Wood	Photo 7
Ceiling Finishes	Unfinished	Photo 9
Floor Finishes	Painted Concrete	Photo 12
Interior Doors	None	None
Interior Lighting	None	None
Exterior Lighting	None	None
Heating	None	None
Plumbing	None	None

4.2 FINDINGS

The findings documented in this section are based on observations made by Amec Foster Wheeler personnel at the time of the Site visit and laboratory analyses of samples collected from the upper winch house.

4.2.1 Asbestos-Containing Materials (ACMs)

There are over 3,000 ACMs that are commercially available, which can be divided into two broad categories: friable and non-friable. ACMs were discontinued from use in Canada in the late 1970s/early 1980s, although non-friable asbestos is still found in many more recent buildings.

One (1) building material sample (BLI-AS42) was collected from the upper winch house and analyzed for asbestos content (refer to Photo 10, Appendix B4). The sample description and analytical results are summarized in Table C4-1, Appendix C4. The sample location and analytical results are graphically illustrated in Figure 4.1, Appendix A4.

4.2.1.1 Friable Materials

Friable ACMs are defined as materials that can be crumbled, pulverized and reduced to powder when dry using hand pressure. Typical friable materials include acoustical or decorative spray applications, fireproofing and thermal insulation.

4.2.1.1.1 Spray-Applied Fireproofing, Insulation and Texture Finishes

There were no spray-applied fireproofing, insulation or texture finishes observed within the upper winch house during the Site visit; therefore, no samples of these materials were collected for analysis during this assessment.

4.2.1.2 Non-Friable and Potentially Friable Materials

Non-friable ACMs are hard or manufactured products such as floor tiles, fire blankets, pre-formed manufactured cementitious insulation and wallboards, pipes, and siding, wherein the asbestos fibres are bound to the substrate. Note that although a product may be considered non-friable when new, the product may release fine dust when disturbed (e.g., deterioration, removal, renovations) and the free dust is considered friable.

4.2.1.2.1 Ceiling Tile

There were no ceiling tiles observed in the upper winch house during the Site visit; therefore, no samples of ceiling tile were collected for analysis during this assessment.

4.2.1.2.2 Drywall Joint Compound

There was no drywall observed in the upper winch house during the Site visit; therefore, no samples of drywall joint compound were collected for analysis during this assessment.

4.2.1.2.3 Vinyl Flooring Products and Mastics

There was no vinyl flooring products and associated mastics observed in the upper winch house during the Site visit; therefore, no samples of these types of materials were collected for analysis during this assessment.

4.2.1.2.4 Baseboard, Carpet and Stair Tread Adhesives/Mastics

There were no baseboard, carpet or stair tread adhesives/mastics observed in the upper winch house during the Site visit; therefore, no samples of these types of adhesives/mastics were collected for analysis during this assessment.

4.2.1.2.5 Roofing Products

The roofing materials on the upper winch house consist of asphalt shingles and tar. One (1) sample of asphalt shingle (red) with tar (black) (BLI-AS42) was collected from the roof of the upper winch house and analyzed for asbestos content (refer to Photo 10, Appendix B4). Chrysotile asbestos (<0.30%) was detected in sample BLI-AS42 (i.e. asphalt shingle with tar) at a level below the applicable *NL Asbestos Abatement Regulations (111/98)* (i.e., >1%).

4.2.1.2.6 Thermal System Insulation

There was no insulation observed in the upper winch house during the Site visit; therefore, no samples of insulation were collected for analysis during this assessment.

4.2.1.2.7 Weather Stripping and Caulking

There was no weather stripping or caulking observed on the exterior of the upper winch house during the Site visit; therefore, no samples of weather stripping or caulking were collected for analysis during this assessment.

4.2.1.2.8 Mortar, Grout and Other Cementitious Materials

There was no mortar, grout or other suspected cementitious ACMs observed within the upper winch house during the Site visit; therefore, no samples of these materials were collected for analysis during this assessment.

4.2.2 Paint Additives

Lead compounds have been used in paint as pigment and durability additives since the early 1800s. Mercury compounds have been used in paint as anti-microbial additives up until the 1990s. PCBs have been used in paint as plasticizers and corrosion resistance additives from the 1950s to the 1970s.

The paint visible on the interior and exterior of the upper winch house was peeling and flaking and in poor condition (refer to Photos 4, 5, 6 and 12, Appendix B4).

A total of two (2) samples (BLI-PS29 and BLI-PS30) were collected from painted surfaces of the upper winch house and analyzed for lead, mercury and PCB content (refer to Photos 11 and 12, Appendix B4). Sample descriptions and analytical results are summarized in Tables C4-2 to C4-4, Appendix C4. Sample locations and analytical results are graphically illustrated in Figure 4.1, Appendix A4.

4.2.2.1 Lead in Paint

The concentrations of lead in the paint samples ranged from 830 mg/kg to 990 mg/kg (refer to Table C4-2, Appendix C4). The two (2) paint samples (BLI-PS29 and BLI-PS30) analyzed contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg (refer to Photos 11 and 12, Appendix B4).

4.2.2.2 Mercury in Paint

The concentrations of mercury in the paint samples ranged from non-detect (<1.0 mg/kg) to 6.2 mg/kg (refer to Table C4-3, Appendix C4). The two (2) paint samples (BLI-PS29 and BLI-PS30) analyzed were either non-detect for mercury (i.e. <1.0 mg/kg) or contained mercury at a concentration below the applicable Federal HPA criterion (i.e. 10 mg/kg).

4.2.2.3 PCBs in Paint

The two (2) paint samples (BLI-PS29 and BLI-PS30) analyzed for PCBs were non-detect (<5.0 mg/kg) and therefore did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* (refer to Table C4-4, Appendix C4).

4.2.3 Urea Formaldehyde Foam Insulation (UFFI)

Visual indicators suggesting the potential presence of UFFI were not observed in the upper winch house. The walls and ceiling of the winch house are unfinished and there was no insulation observed in the upper winch house during the Site visit.

4.2.4 Suspected Visible Mould Growth (SVG)

Amec Foster Wheeler inspected the interior areas of the upper winch house for visual or olfactory evidence of suspected mould. Discoloration on unfinished wood that can be a result of building materials compromised by moisture was observed on the walls of the upper winch house (refer to Photo 7, Appendix B3).

4.2.5 Mercury-Containing Thermostats

There were no thermostats observed in the upper winch house during the Site visit. Therefore, no thermostats were inspected for the presence of mercury-containing switches.

4.2.6 PCB-Containing Light Ballasts

There were no fluorescent light fixtures observed in the upper winch house during the Site visit. Therefore, no fluorescent light ballasts were inspected for the presence or absence of PCB-containing dielectric fluid.

4.2.7 Potential Sources of ODSs and Halocarbons

No potential sources of ODSs were identified in the upper winch house during this assessment.

4.2.8 Petroleum Storage Tanks

No petroleum ASTs were identified inside the upper winch house during this assessment.

4.2.9 Other Potentially Hazardous Building Materials or Substances

Other potentially hazardous building materials or substances identified during this assessment are presented in the following sections.

4.2.9.1 Mercury

Fluorescent light tubes and bulbs often contain limited quantities of mercury in a powder or vapour form; however, no fluorescent light tubes or bulbs were observed within the upper winch house during this assessment.

4.2.9.2 Lead

Lead is typically associated with plumbing solder and older pipe materials (e.g., cast iron pipe joints), as well as products such as radiation protective shielding and lead-acid batteries.

No potential sources of lead were identified in the upper winch house during this assessment.

4.2.9.3 Silica

Silica is expected to be present in concrete building materials used to construct the upper winch house.

4.3 CONCLUSIONS AND RECOMMENDATIONS

Based on observations made and information gathered during this HMBA, the following conclusions and recommendations are made with respect to the potential and actual presence of hazardous building materials at the upper winch house:

- **Asbestos-Containing Materials (ACMs)**
    - Building materials containing less than 1% asbestos by dry weight are present in the form of asphalt roofing shingles.
    - If other potential ACMs that were not sampled as part of this assessment are encountered in the future, these materials should be treated as ACMs or samples should be collected and tested to verify asbestos content. This should be done as soon as these materials are encountered and before these materials are disturbed.

- **Lead, Mercury and PCBs in Paint**
  - The two (2) paint samples analyzed contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg. These paints are considered to be lead-based paints that are regulated under the Federal Surface Coating Materials Regulations.
  - The two (2) paint samples analyzed were either non-detect for mercury (i.e. <1.0 mg/kg) or contained mercury at a concentration below the applicable Federal HPA criterion (i.e. 10 mg/kg).
  - PCBs were not detected above the reportable detection limit (5.0 mg/kg) in the two (2) paint samples analyzed and therefore the concentrations of PCBs in these samples did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)*.
  - Results of the paint sampling and analytical program revealed lead-based paint finishes on the interior and exterior of the upper winch house (i.e., the concentrations of lead in the paint finishes were above the applicable Federal HPA criteria of 90 mg/kg for lead). There are potential adverse human health impacts associated with disturbing (e.g., scraping) lead-based paint finishes. As a precautionary measure, Amec Foster Wheeler recommends handling lead-based paint finishes during demolition, as follows:
    - In areas of minor peeling or flaking the paint should be removed using wet scraping techniques.
    - In areas of extensive peeling and flaking the paint should be removed and more extensive particulate control measures may be required.
    - In areas where lead-based paint finishes are present and in poor condition, an experienced contractor should be utilized for decommissioning/demolition activities.
    - Steps should be taken to ensure that workers and anyone present in and around areas being dismantled or demolished are protected. The contractor should also ensure that dust generation and migration is minimized.
  - If potential lead, mercury or PCB containing paint finishes that were not sampled during this assessment are encountered in future, samples should be obtained and tested to verify lead, mercury and PCB content. This should be done as soon as the paint is encountered and before it is disturbed.

- **Mould**
  - Discoloration on unfinished wood that can be a result of building materials compromised by moisture was observed on the walls of the upper winch house.
  - Existing conditions in the upper winch house (e.g., areas open to the environment) may potentially contribute to or enhance mould growth inside the building.

- **Silica Dust**
  - Silica is expected to be present in concrete building materials used to construct the upper winch house.
  - Precautions should be taken to prevent/reduce exposure to silica dust during any disturbance/demolition of silica-containing products, such as wetting the surface of the materials to prevent dust emissions, donning respiratory protection, and cleaning tools and clothing prior to exiting the work area.

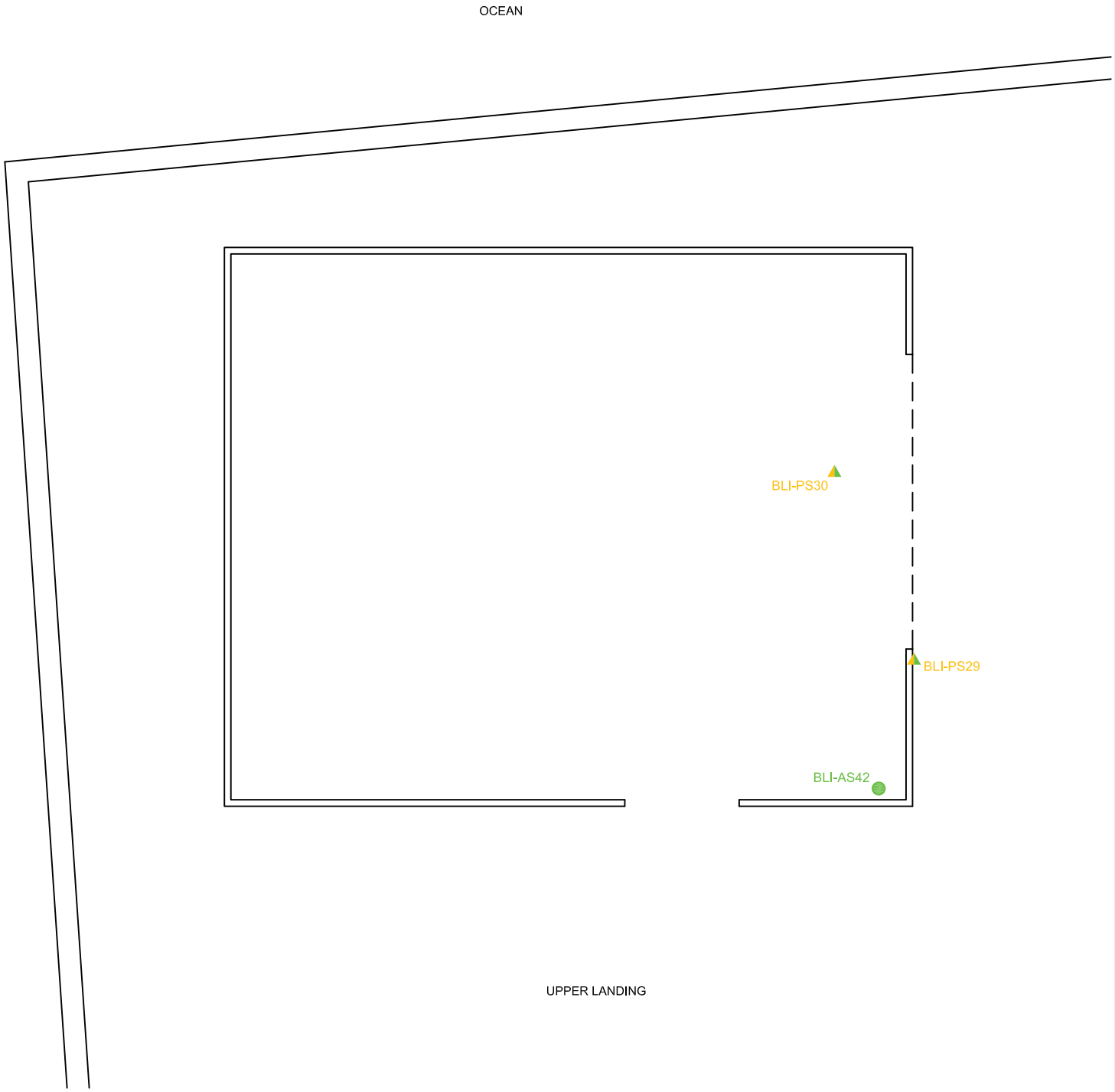
Hazardous materials identified at the upper winch house during this HBMA are summarized in Table 4-2.

Table 4-2: Hazardous Material Description

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Building interior and exterior	-	All painted materials that were sampled and analyzed for lead may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Silica Dust	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2010	Concrete building materials	-	All concrete can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility.

APPENDIX A4

FIGURES



LEGEND:

- ASBESTOS SAMPLE LOCATION - ASBESTOS NOT DETECTED OR RESULTS < 1% FOR ASBESTOS
- PAINT SAMPLE LOCATION - RESULTS EXCEED 90 mg/kg AND LESS THAN 5000 mg/kg FOR LEAD AND NO CRITERIA EXCEEDANCE FOR MERCURY

NOTES:
1. DO NOT SCALE FROM FIGURE.
2. THIS FIGURE IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION OF THE STUDY AREA IN SUPPORT OF THIS REPORT.
3. ALL LOCATIONS, DIMENSIONS, AND ORIENTATIONS ARE APPROXIMATE.
4. THIS FIGURE SHOULD NOT BE USED FOR PURPOSES OTHER THAN THOSE OUTLINED ABOVE.
5. THIS FIGURE CONTAINS INTELLECTUAL PROPERTY OF PUBLIC WORKS AND GOVERNMENT SERVICES CANADA AND MAY NOT BE REPRODUCED OR COPIED WITHOUT THEIR WRITTEN CONSENT.
6. THIS FIGURE WAS PRODUCED USING FIELD NOTES AND FIGURES PROVIDED BY PUBLIC WORKS AND GOVERNMENT SERVICES CANADA..

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Date: February 2015	Project: DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT AND INVENTORY, BACCALIEUISLAND LIGHTSTATION (DFRP 80521), BACCALIEU ISLAND, NL		
Drawn by: A. Hollett	Title: SAMPLE LOCATION PLAN - UPPER WINCH HOUSE		
Approved by: L. Wiseman	Scale: 1:750	Project No.: TF14076579	Figure No.: 4.1

APPENDIX B4

PHOTOGRAPHIC RECORD

Photo 1: View of upper landing deck and winch house.

Photo 2: View of northwest side of upper winch house.

Photo 3: View of roof of upper winch house.

Photo 4: View of northeast side of upper winch house.

Photo 5: View of southwest side of upper winch house.

Photo 6: View of southeast side of upper winch house.

Photo 7: View of interior of upper winch house.

Photo 8: View of interior of upper winch house.

Photo 9: View of interior of upper winch house.

Photo 10: View of asphalt shingle sample BLI-AS42.

Photo 11: View of paint sample BLI-PS29.

Photo 12: View of paint sample BLI-PS30.

APPENDIX C4

SAMPLE AND ANALYTICAL SUMMARY TABLES

Table C4-1: Bulk Sample Descriptions and Asbestos Analytical Results

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location (Room No.)	Analytical Result
BLI-AS42	Asphalt Shingle and Tar	Asphalt shingle (red) with tar (black).	Upper Winch House Exterior	<0.30% Chrysotile

Notes:
ND: Non-detect
ND = <1% asbestos
Shaded results greater than 1% asbestos by dry weight are considered to be asbestos-containing materials (ACMs) as outlined in the Newfoundland and Labrador Asbestos Abatement Regulations (Reg. 111/98)

Table C4-2: Paint Sample Descriptions and Lead Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Lead (mg/kg)
BLI-PS29	Red over white over black paint.	Wood	Upper Winch House Exterior	5.0	**990**
BLI-PS30	Grey over red paint.	Concrete	Upper Winch House Interior	5.0	**830**

Notes:
RDL: Reportable detection limit
<X: Non-detect
HPA: Hazardous Products Act
Bold and underlined results indicate that lead concentration is above the Federal HPA criterion of 90 mg/kg.
Shaded results indicate that lead concentration is above the former Federal HPA criterion of 5,000 mg/kg.

Table C4-3: Paint Sample Descriptions and Mercury Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Mercury (mg/kg)
BLI-PS29	Red over white over black paint.	Wood	Upper Winch House Exterior	1.0	6.2
BLI-PS30	Grey over red paint.	Concrete	Upper Winch House Interior	1.0	<1.0

Notes:
RDL: Reportable detection limit
<X: Non-detect
HPA: Hazardous Products Act
Bold and underlined results indicate that mercury concentration is above the Federal HPA criterion of 10 mg/kg.
Shaded results indicate that mercury concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for mercury in soil at an industrial site (50 mg/kg).

Table C4-4: Paint Sample Descriptions and PCB Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total PCB (mg/kg)
BLI-PS29	Red over white over black paint.	Wood	Upper Winch House Exterior	5.0	<5.0
BLI-PS30	Grey over red paint.	Concrete	Upper Winch House Interior	5.0	<5.0

Notes:
RDL: Reportable detection limit
<X: Non-detect
Shaded results indicate that PCB concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for PCBs in soil at an industrial site (50 mg/kg).

SECTION 5.0 EXECUTIVE SUMMARY

Hazardous materials identified at the lower winch house during the demolition HMBA are summarized in Table E-5.

Table E-5: Hazardous Material Description

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Building exterior	-	All painted materials that were sampled and analyzed for lead may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.

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APPENDICES

5.0 LOWER WINCH HOUSE

The lower winch house is located on the southwest point of Baccalieu Island (refer to Figures 1.1 and 1.2, Appendix A1 and Photo 3, Appendix B1). The date that the lower winch house was constructed on Baccalieu Island is not known; however, based on similar building materials, the winch house may have been constructed around the same time as the double dwelling and old equipment building (i.e. 1953-1955).

5.1 BUILDING DESCRIPTION

A description of the lower winch house is outlined in Table 5-1. Photographs of the lower winch house are provided in Appendix B5.

Table 5-1: Site Building Description

Building Name	Lower Winch House	Photo (Appendix B5)
Number of Stories	One	Photo 4
Basement	No	None
Attic	No	None
Type of Structure	Wooden Frame	Photo 7
Type of Foundation	Plywood	Photo 7
Exterior	Painted Plywood	Photos 4, 5 and 6
Door Frames	Painted Wooden Frames	Photo 4
Exterior Doors	Wooden	Photo 6
Roofing Materials	Tar Paper and Tar	Photos 5 and 10
Interior Walls Finishes	Unfinished	Photos 7, 8 and 9
Ceiling Finishes	Unfinished	Photo 8
Floor Finishes	Unfinished	Photo 7
Interior Doors	None	None
Interior Lighting	None	None
Exterior Lighting	None	None
Heating	None	None
Plumbing	None	None

5.2 FINDINGS

The findings documented in this section are based on observations made by Amec Foster Wheeler personnel at the time of the Site visit and laboratory analyses of samples collected from the lower winch house.

5.2.1 Asbestos-Containing Materials (ACMs)

There are over 3,000 ACMs that are commercially available, which can be divided into two broad categories: friable and non-friable. ACMs were discontinued from use in Canada in the late 1970s/early 1980s, although non-friable asbestos is still found in many more recent buildings.

One (1) building material sample (BLI-AS41) was collected from the lower winch house and analyzed for asbestos content (refer to Photo 10, Appendix B5). The sample description and analytical results are summarized in Table C5-1, Appendix C5. The sample location and analytical results are graphically illustrated in Figure 5.1, Appendix A5.

5.2.1.1 Friable Materials

Friable ACMs are defined as materials that can be crumbled, pulverized and reduced to powder when dry using hand pressure. Typical friable materials include acoustical or decorative spray applications, fireproofing and thermal insulation.

5.2.1.1.1 Spray-Applied Fireproofing, Insulation and Texture Finishes

There were no spray-applied fireproofing, insulation or texture finishes observed within the lower winch house during the Site visit; therefore, no samples of these materials were collected for analysis during this assessment.

5.2.1.2 Non-Friable and Potentially Friable Materials

Non-friable ACMs are hard or manufactured products such as floor tiles, fire blankets, pre-formed manufactured cementitious insulation and wallboards, pipes, and siding, wherein the asbestos fibres are bound to the substrate. Note that although a product may be considered non-friable when new, the product may release fine dust when disturbed (e.g., deterioration, removal, renovations) and the free dust is considered friable.

5.2.1.2.1 Ceiling Tile

There were no ceiling tiles observed in the lower winch house during the Site visit; therefore, no samples of ceiling tile were collected for analysis during this assessment.

5.2.1.2.2 Drywall Joint Compound

There was no drywall observed in the lower winch house during the Site visit; therefore, no samples of drywall joint compound were collected for analysis during this assessment.

5.2.1.2.3 Vinyl Flooring Products and Mastics

There was no vinyl flooring products and associated mastics observed in the lower winch house during the Site visit; therefore, no samples of these types of materials were collected for analysis during this assessment.

5.2.1.2.4 Baseboard, Carpet and Stair Tread Adhesives/Mastics

There were no baseboard, carpet or stair tread adhesives/mastics observed in the lower winch house during the Site visit; therefore, no samples of these types of adhesives/mastics were collected for analysis during this assessment.

5.2.1.2.5 Roofing Products

The roofing materials on the lower winch house consist of rolled tar paper sheeting and tar. One (1) sample of tar paper (black) with tar (black) (BLI-AS41) was collected from the roof of the lower winch house and analyzed for asbestos content (refer to Photo 10, Appendix B5). Asbestos was not detected in the roofing material sample.

5.2.1.2.6 Thermal System Insulation

There was no insulation observed in the lower winch house during the Site visit; therefore, no samples of insulation were collected for analysis during this assessment.

5.2.1.2.7 Weather Stripping and Caulking

There was no weather stripping or caulking observed on the exterior of the lower winch house during the Site visit; therefore, no samples of weather stripping or caulking were collected for analysis during this assessment.

5.2.1.2.8 Mortar, Grout and Other Cementitious Materials

There was no mortar, grout or other suspected cementitious ACMs observed within the lower winch house during the Site visit; therefore, no samples of these materials were collected for analysis during this assessment.

5.2.1.2.9 Other Potential ACMs

Other potential ACMs were observed and were not sampled due to the nature of the materials and/or hazards associated with sampling these materials. These materials included, but are not limited to, electrical and mechanical components and insulators such as wiring and gaskets inside mechanical equipment (i.e. winch) (refer to Photo 7, Appendix B5).

5.2.2 Paint Additives

Lead compounds have been used in paint as pigment and durability additives since the early 1800s. Mercury compounds have been used in paint as anti-microbial additives up until the 1990s. PCBs have been used in paint as plasticizers and corrosion resistance additives from the 1950s to the 1970s.

The paint visible on the exterior of the lower winch house was generally intact and in fair condition (refer to Photos 4, 5 and 6, Appendix B5).

A total of two (2) samples (BLI-PS24 and BLI-PS25) were collected from painted surfaces of the lower winch house and analyzed for lead and mercury content (refer to Photos 11 and 12, Appendix B5). One (1) paint sample (BLI-PS24) was also analyzed for PCB content. Sample descriptions and analytical results are summarized in Tables C5-2 to C5-4, Appendix C5. Sample locations and analytical results are graphically illustrated in Figure 5.1, Appendix A5.

5.2.2.1 Lead in Paint

The concentrations of lead in the paint samples ranged from 440 mg/kg to 1,200 mg/kg (refer to Table C5-2, Appendix C5). The two (2) paint samples (BLI-PS24 and BLI-PS25) analyzed contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg (refer to Photos 11 and 12, Appendix B5).

5.2.2.2 Mercury in Paint

The two (2) paint samples (BLI-PS24 and BLI-PS25) analyzed for mercury were non-detect (<1.0 mg/kg) and therefore did not exceed the applicable Federal HPA criterion (i.e. 10 mg/kg) (refer to Table C5-3, Appendix C5).

5.2.2.3 PCBs in Paint

The paint sample (BLI-PS24) analyzed for PCBs was non-detect (<5.0 mg/kg) and therefore did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* (refer to Table C5-4, Appendix C5).

5.2.3 Urea Formaldehyde Foam Insulation (UFFI)

Visual indicators suggesting the potential presence of UFFI were not observed in the lower winch house. The walls and ceiling of the winch house are unfinished and there was no insulation observed in the lower winch house during the Site visit.

5.2.4 Suspected Visible Mould Growth (SVG)

Amec Foster Wheeler inspected the interior areas of the lower winch house for visual or olfactory evidence of suspected mould. No areas of SVG and/or water damage were observed on the interior surfaces of the winch house at the time of the Site visit.

5.2.5 Mercury-Containing Thermostats

There were no thermostats observed in the lower winch house during the Site visit. Therefore, no thermostats were inspected for the presence of mercury-containing switches.

5.2.6 PCB-Containing Light Ballasts

There were no fluorescent light fixtures observed in the lower winch house during the Site visit. Therefore, no fluorescent light ballasts were inspected for the presence or absence of PCB-containing dielectric fluid.

5.2.7 Potential Sources of ODSs and Halocarbons

No potential sources of ODSs were identified in the lower winch house during this assessment.

5.2.8 Petroleum Storage Tanks

No petroleum ASTs were identified inside the lower winch house during this assessment.

5.2.9 Other Potentially Hazardous Building Materials or Substances

Other potentially hazardous building materials or substances identified during this assessment are presented in the following sections.

5.2.9.1 Mercury

Fluorescent light tubes and bulbs often contain limited quantities of mercury in a powder or vapour form; however, no fluorescent light tubes or bulbs were observed within the lower winch house during this assessment.

5.2.9.2 Lead

Lead is typically associated with plumbing solder and older pipe materials (e.g., cast iron pipe joints), as well as products such as radiation protective shielding and lead-acid batteries.

No potential sources of lead were identified in the lower winch house during this assessment.

5.2.9.3 Silica

Silica is not expected to be present in the building materials used to construct the lower winch house.

5.3 CONCLUSIONS AND RECOMMENDATIONS

Based on observations made and information gathered during this HMBA, the following conclusions and recommendations are made with respect to the potential and actual presence of hazardous building materials at the lower winch house:

- **<u>Asbestos-Containing Materials (ACMs)</u>**
    - There are no building materials containing greater than 1% asbestos by dry weight for the materials sampled during this assessment.
    - Other potential ACMs were observed and were not sampled due to the nature of the materials and/or hazards associated with sampling these materials. These materials included, but are not limited to, electrical and mechanical components and insulators such as wiring and gaskets inside mechanical equipment.

- If other potential ACMs that were not sampled as part of this assessment are encountered in the future, these materials should be treated as ACMs or samples should be collected and tested to verify asbestos content. This should be done as soon as these materials are encountered and before these materials are disturbed.

- **Lead, Mercury and PCBs in Paint**
  - The two (2) paint samples analyzed contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg. These paints are considered to be lead-based paints that are regulated under the Federal Surface Coating Materials Regulations.
  - Mercury was not detected above the reportable detection limit (1.0 mg/kg) in the two (2) paint samples analyzed and therefore the concentrations of mercury in these samples did not exceed the applicable Federal HPA criterion (i.e. 10 mg/kg).
  - PCBs were not detected above the reportable detection limit (5.0 mg/kg) in the paint sample analyzed and therefore the concentration of PCBs in this sample did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)*.
  - Results of the paint sampling and analytical program revealed lead-based paint finishes on the exterior of the lower winch house (i.e., the concentrations of lead in the paint finishes were above the applicable Federal HPA criteria of 90 mg/kg for lead). There are potential adverse human health impacts associated with disturbing (e.g., scraping) lead-based paint finishes. As a precautionary measure, Amec Foster Wheeler recommends handling lead-based paint finishes during demolition, as follows:
    - In areas of minor peeling or flaking the paint should be removed using wet scraping techniques.
    - In areas of extensive peeling and flaking the paint should be removed and more extensive particulate control measures may be required.
    - In areas where lead-based paint finishes are present and in poor condition, an experienced contractor should be utilized for decommissioning/demolition activities.
    - Steps should be taken to ensure that workers and anyone present in and around areas being dismantled or demolished are protected. The contractor should also ensure that dust generation and migration is minimized.
  - If potential lead, mercury or PCB containing paint finishes that were not sampled during this assessment are encountered in future, samples should be obtained and tested to verify lead, mercury and PCB content. This should be done as soon as the paint is encountered and before it is disturbed.

- **Mould**
  - No areas of SVG and/or water damage were observed on the interior surfaces of the lower winch house at the time of the Site visit.
  - Existing conditions in the lower winch house (e.g., areas open to the environment) may potentially contribute to or enhance mould growth inside the building.

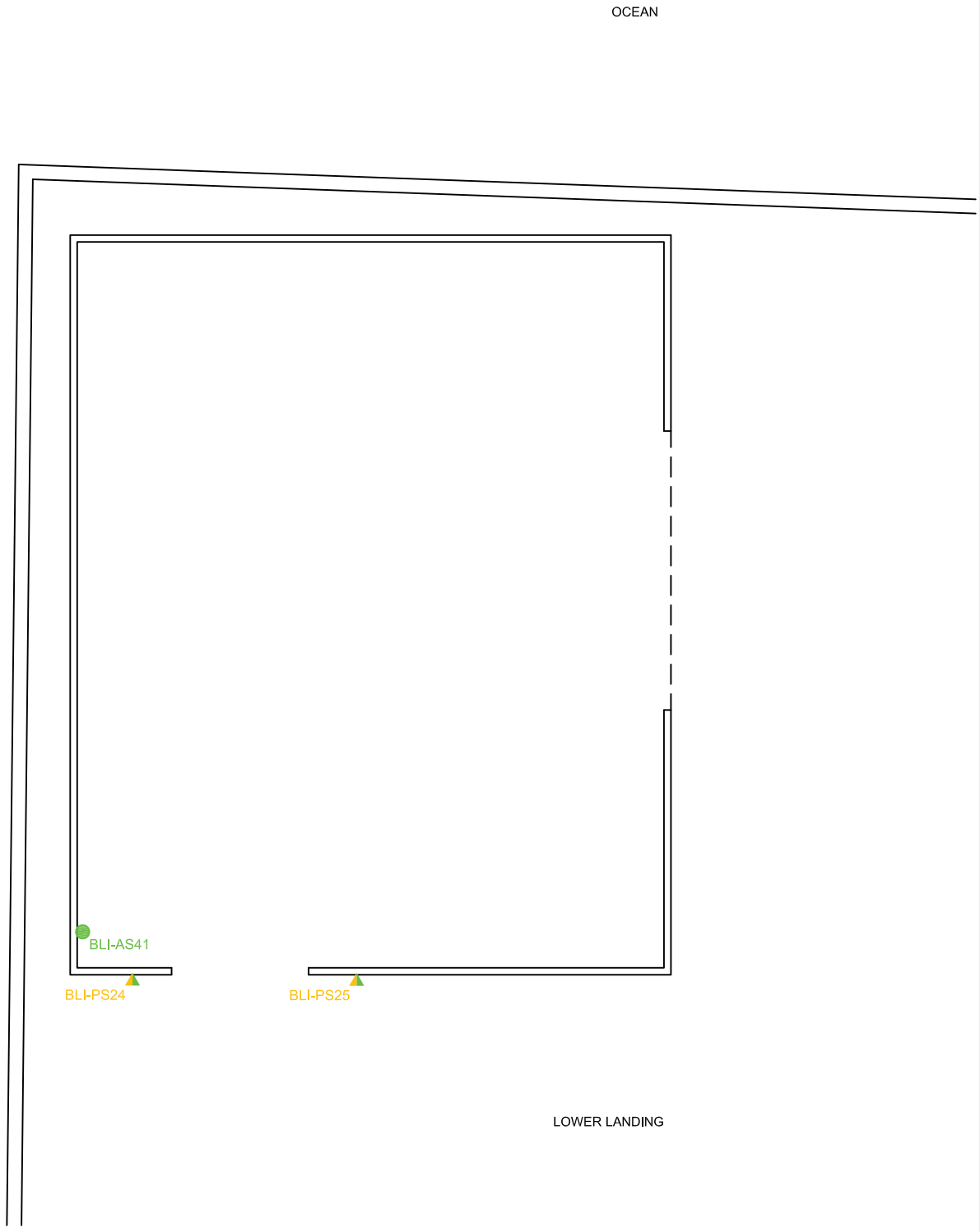
Hazardous materials identified at the lower winch house during this HBMA are summarized in Table 5-2.

Table 5-2: Hazardous Material Description

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Building exterior	-	All painted materials that were sampled and analyzed for lead may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.

APPENDIX A5

FIGURES



LEGEND:

- ASBESTOS SAMPLE LOCATION - ASBESTOS NOT DETECTED OR RESULTS < 1% FOR ASBESTOS
- PAINT SAMPLE LOCATION - RESULTS EXCEED 90 mg/kg AND LESS THAN 5000 mg/kg FOR LEAD AND NO CRITERIA EXCEEDANCE FOR MERCURY

NOTES:
1. DO NOT SCALE FROM FIGURE.
2. THIS FIGURE IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION OF THE STUDY AREA IN SUPPORT OF THIS REPORT.
3. ALL LOCATIONS, DIMENSIONS, AND ORIENTATIONS ARE APPROXIMATE.
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Date: February 2015	Project: DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT AND INVENTORY, BACCALIEUISLAND LIGHTSTATION (DFRP 80521), BACCALIEU ISLAND, NL		
Drawn by: A. Hollett	Title: SAMPLE LOCATION PLAN - LOWER WINCH HOUSE		
Approved by: L. Wiseman	Scale: 1:750	Project No.: TF14076579	Figure No.: 5.1

APPENDIX B5

PHOTOGRAPHIC RECORD

Photo 1: View of lower landing area.

Photo 2: View of lower landing area.

Photo 3: View of lower landing deck and winch house.

Photo 4: View of lower landing deck and winch house.

Photo 5: View of southeast side of lower winch house.

Photo 6: View of northwest side of lower winch house.

Photo 7: View of interior of lower winch house.

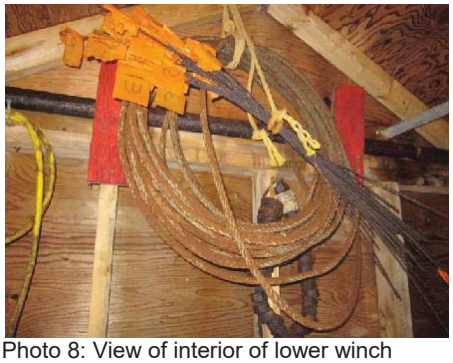

Photo 8: View of interior of lower winch house.

Photo 9: View of interior of lower winch house.

Photo 10: View of tar paper sheeting sample BLI-AS41.

Photo 11: View of paint sample BLI-PS24.

Photo 12: View of paint sample BLI-PS25.

APPENDIX C5

SAMPLE AND ANALYTICAL SUMMARY TABLES

Table C5-1: Bulk Sample Descriptions and Asbestos Analytical Results

Sample ID	Material (Layer) Analyzed	Detailed Material Description	Sample Location (Room No.)	Analytical Result
BLI-AS41	Tar Paper	Rolled tar paper sheeting (black) and tar (black).	Lower Winch House Exterior	ND

Notes:
ND: Non-detect
ND = <1% asbestos
Shaded results greater than 1% asbestos by dry weight are considered to be asbestos-containing materials (ACMs) as outlined in the Newfoundland and Labrador Asbestos Abatement Regulations (Reg. 111/98)

Table C5-2: Paint Sample Descriptions and Lead Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Lead (mg/kg)
BLI-PS24	White paint.	Plywood	Lower Winch House Exterior	5.0	**1,200**
BLI-PS25	Red over white paint.	Wood	Lower Winch House Exterior	5.0	**440**

Notes:
RDL: Reportable detection limit
<X: Non-detect
HPA: Hazardous Products Act
Bold and underlined results indicate that lead concentration is above the Federal HPA criterion of 90 mg/kg.
Shaded results indicate that lead concentration is above the former Federal HPA criterion of 5,000 mg/kg.

Table C5-3: Paint Sample Descriptions and Mercury Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Mercury (mg/kg)
BLI-PS24	White paint.	Plywood	Lower Winch House Exterior	1.0	<1.0
BLI-PS25	Red over white paint.	Wood	Lower Winch House Exterior	1.0	<1.0

Notes:
RDL: Reportable detection limit
<X: Non-detect
HPA: Hazardous Products Act
Bold and underlined results indicate that mercury concentration is above the Federal HPA criterion of 10 mg/kg.
Shaded results indicate that mercury concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for mercury in soil at an industrial site (50 mg/kg).

Table C5-4: Paint Sample Descriptions and PCB Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total PCB (mg/kg)
BLI-PS24	White paint.	Plywood	Lower Winch House Exterior	5.0	<5.0

Notes:
RDL: Reportable detection limit
<X: Non-detect
Shaded results indicate that PCB concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for PCBs in soil at an industrial site (50 mg/kg).

SECTION 6.0 EXECUTIVE SUMMARY

Hazardous materials identified at the Site exterior structures during the demolition HMBA are summarized in Table E-6.

Table E-6: Hazardous Material Description

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Stairway railing between old equipment and lower landing; outhouse; stairway between upper landing and helicopter landing pad	-	All painted materials that were sampled and analyzed for lead may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Silica Dust	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2010	Concrete building materials	-	All concrete can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility.
Creosote Treated Timber	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Stairway between upper landing and helicopter landing pad; lower landing deck foundation posts and spar	-	Pending TCLP analysis, these materials (creosote treated timber) may be considered hazardous wastes and must be disposed according to NL policy and the Solid Waste Management Authority by an approved hazardous waste disposal company and transported under the federal TDG Act.

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APPENDICES

6.0 SITE EXTERIOR

Site exterior structures at the Baccalieu Island Lightstation that were to be assessed as part of the demolition HBMA included (refer to Figures 1.1 and 1.2, Appendix A1 and Photos 2 to 6, Appendix B1):

- Winch House (next to Double Dwelling)
- Upper Landing Deck (including Winch, Spar and Boom)
- Lower Landing Deck (including Winch, Spar and Boom)
- Various Timber Stairways/Walkways
- Wood Fencing

The following Site exterior structures were not slated for demolition and were therefore not included in this assessment:

- Helicopter Landing Pad
- Solar Arrays
- Fog Alarm
- Light Tower (New)

It is important to note that the winch house next to the double dwelling, the winch, spar and boom at the upper landing, and the boom at the lower landing are no longer present at the Site.

6.1 BUILDING DESCRIPTION

A description of the Site exterior structures is outlined in Table 6-1. Photographs of the Site exterior structures are provided in Appendix B6.

Table 6-1: Site Exterior Structure Description

Structure Name	**Helicopter Landing Pad**	**Photo (Appendix B6)**
Type of Structure	Pressure Treated Wood and Metal	Photos 1 and 4
Type of Foundation	Wood Posts and Concrete Footings	Photos 1, 4 and 20
Structure Name	**Tank Pad**	**Photo (Appendix B6)**
Type of Foundation	Concrete Slab	Photo 1
Structure Name	**Light Tower**	**Photo (Appendix B6)**
Type of Structure	Metal Frame	Photos 1, 4 and 5
Type of Foundation	Concrete Base	Photos 1, 4 and 5
Structure Name	**Walkways and Stairways**	**Photo (Appendix B6)**
Type of Structure	Pressure and Creosote Treated Wood and Poured Concrete	Photos 1, 2, 4, 5, 11, 12, 14, 18 and 19
Type of Foundation	Pressure and Creosote Treated Wood Posts and Concrete Footings	Photos 5, 14 and 18
Structure Name	**Solar Arrays**	**Photo (Appendix B6)**
Type of Structure	Metal Frame and Solar Panels	Photos 1 and 7
Type of Foundation	Concrete Base	None

Structure Name	**Fog Alarm**	**Photo (Appendix B6)**
Type of Structure	Metal Frame	None
Type of Foundation	Concrete Base	None
Structure Name	**Lower Landing Deck and Spar**	**Photo (Appendix B6)**
Type of Structure	Pressure Treated Wood	Photos 13, 14 and 15
Type of Foundation	Pressure and Creosote Treated Wood Posts	Photo 14
Structure Name	**Upper Landing Deck**	**Photo (Appendix B6)**
Type of Structure	Pressure Treated Wood	Photos 3, 4 and 5
Type of Foundation	Pressure Treated Wood Posts	Photo 3
Structure Name	**Former Winch House Foundation**	**Photo (Appendix B6)**
Type of Foundation	Concrete Slab and Pressure Treated Wood	Photo 8
Structure Name	**Outhouse**	**Photo (Appendix B6)**
Type of Structure	Wood	Photo 10
Structure Name	**Fencing, Railings and Retaining Walls**	**Photo (Appendix B6)**
Type of Structure	Pressure Treated Wood	Photos 6, 8 and 9
Type of Foundation	Pressure Treated Wood Posts	Photos 6, 8 and 9

It is important to note that some areas of the wooden walkways, stairways, railings and landing decks located throughout the Site exterior are in a state of disrepair.

6.2 FINDINGS

The findings documented in this section are based on observations made by Amec Foster Wheeler personnel at the time of the Site visit and laboratory analyses of samples collected from the Site exterior structures.

6.2.1 Asbestos-Containing Materials (ACMs)

There are over 3,000 ACMs that are commercially available, which can be divided into two broad categories: friable and non-friable. ACMs were discontinued from use in Canada in the late 1970s/early 1980s, although non-friable asbestos is still found in many more recent buildings.

No building material samples were collected from the Site exterior structures and analyzed for asbestos content during the demolition HMBA. Hidden and inaccessible ACMs have the potential to be present at the Site but were not identified during the Site visit. These possible ACMs could include underground infrastructure and piping.

6.2.2 Paint Additives

Lead compounds have been used in paint as pigment and durability additives since the early 1800s. Mercury compounds have been used in paint as anti-microbial additives up until the 1990s. PCBs have been used in paint as plasticizers and corrosion resistance additives from the 1950s to the 1970s.

The condition of the paint visible on the Site exterior structures varied from fair to poor condition. Peeling and flaking paint was observed on the stairway from the upper landing to the helicopter landing pad, on the walkway from the old equipment building to the lower landing and on the lower landing railings (refer to Photos 4, 10 and 18, Appendix B6).

A total of four (4) samples (BLI-PS26, BLI-PS27, BLI-PS28 and BLI-PS31) were collected from painted surfaces of the Site exterior structures and analyzed for lead and mercury content (refer to Photos 8, 16, 17 and 18, Appendix B6). Two (2) paint samples (BLI-PS28 and BLI-PS31) were also analyzed for PCB content. Sample descriptions and analytical results are summarized in Tables C6-1 to C6-3, Appendix C6. Sample locations and analytical results are graphically illustrated in Figure 6.1, Appendix A6.

6.2.2.1 Lead in Paint

The concentrations of lead in the paint samples ranged from 49 mg/kg to 1,000 mg/kg (refer to Table C6-1, Appendix C6). One (1) paint sample (BLI-PS27) contained lead at a concentration below the Federal HPA criterion of 90 mg/kg (refer to Photo 8, Appendix B6). Three (3) paint samples (BLI-PS26, BLI-PS28 and BLI-PS31) contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg (refer to Photos 16 to 18, Appendix B6).

6.2.2.2 Mercury in Paint

The four (4) paint samples (BLI-PS26, BLI-PS27, BLI-PS28 and BLI-PS31) analyzed for mercury were non-detect (<1.0 mg/kg) and therefore did not exceed the applicable Federal HPA criterion (i.e. 10 mg/kg) (refer to Table C6-2, Appendix C6).

6.2.2.3 PCBs in Paint

The two (2) paint samples (BLI-PS28 and BLI-PS31) analyzed for PCBs were non-detect (<5.0 mg/kg) and therefore did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)* (refer to Table C6-3, Appendix C6).

6.2.3 Potential Sources of ODSs and Halocarbons

One (1) fire extinguisher was observed on the Site exterior next to one of the footings of the helicopter landing pad; however, the label on this extinguisher did not indicate the presence of halon or other ODS ingredients (refer to Photos 20 and 21, Appendix B6). Fire extinguishers are considered a household hazardous waste material and must be disposed of at a hazardous waste treatment facility.

6.2.4 Petroleum Storage Tanks

No petroleum ASTs were identified on the Site exterior during this assessment. The previous fuel tanks, which consisted of three (3) double-walled, steel tanks (8,819 litre (L) storage capacity), have been removed from the Site exterior; although, the concrete pad on which the tanks rested still exists near the helicopter landing pad, the walkway and the light tower (refer to Photo 1, Appendix B6).

6.2.5 Other Potentially Hazardous Building Materials or Substances

Other potentially hazardous building materials or substances identified during this assessment are presented in the following sections.

6.2.5.1 Silica

Silica is expected to be present in the concrete used to construct the foundations and footings of the various Site exterior structures.

6.2.5.2 Creosote

Creosote appears to have been used as a wood preservative on some of the timber used to construct the stairway from the upper landing to the helicopter landing pad and on some of the timber used to construct the foundation posts for the lower landing deck and the spar on the lower landing (refer to Photos 4, 14 and 15, Appendix B6).

One (1) sample of creosote treated timber (BLI-CRS1) was collected from the stairway located between the upper landing and the helicopter landing pad for benzo(a)pyrene, m/p-cresol, o-cresol and total cresol leachate using the TCLP to determine whether or not the treated wood would be considered hazardous waste upon removal from the Site (refer to Photo 19, Appendix B6). The laboratory could not perform TCLP leachate analysis on the creosote treated timber sample collected from the stairway due to insufficient sample (i.e. minimum of 110 grams of sample required). The sample location is graphically illustrated in Figure 6.1, Appendix A6.

No samples of creosote treated timber were collected from the deck posts and spar at the lower landing due to health and safety concerns associated with the deteriorated condition of some areas of the timber decking (i.e. cracked and rotted wood).

6.3 CONCLUSIONS AND RECOMMENDATIONS

Based on observations made and information gathered during this HMBA, the following conclusions and recommendations are made with respect to the potential and actual presence of hazardous building materials at the Site exterior structures :

- **<u>Asbestos-Containing Materials (ACMs)</u>**
    - Hidden and inaccessible ACMs have the potential to be present at the Site but were not identified during the Site visit. These possible ACMs could include underground infrastructure and piping.
    - If potential ACMs that were not sampled as part of this assessment are encountered in the future, these materials should be treated as ACMs or samples should be collected and tested to verify asbestos content. This should be done as soon as these materials are encountered and before these materials are disturbed.

- **Lead, Mercury and PCBs in Paint**
  - Three (3) paint samples contained lead at concentrations above the Federal HPA criterion of 90 mg/kg but below the former Federal HPA criterion of 5,000 mg/kg. These paints are considered to be lead-based paints that are regulated under the Federal Surface Coating Materials Regulations.
  - Mercury was not detected above the reportable detection limit (1.0 mg/kg) in the four (4) paint samples analyzed and therefore the concentrations of mercury in these samples did not exceed the applicable Federal HPA criterion (i.e. 10 mg/kg).
  - PCBs were not detected above the reportable detection limit (5.0 mg/kg) in the two (2) paint samples analyzed and therefore the concentrations of PCBs in these samples did not exceed the CCME CSQG of 50 mg/kg for PCBs in soil at an industrial site or the criterion of 50 mg/kg for PCB solid provided in the *NL Department of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal (GD-PPD-26.1)*.
  - Results of the paint sampling and analytical program revealed lead-based paint finishes on the stairway railing between the old equipment and the lower landing, on the outhouse and on the stairway between the upper landing and the helicopter landing pad (i.e., the concentrations of lead in these paint finishes were above the applicable Federal HPA criteria of 90 mg/kg for lead). There are potential adverse human health impacts associated with disturbing (e.g., scraping) lead-based paint finishes. As a precautionary measure, Amec Foster Wheeler recommends handling lead-based paint finishes during demolition, as follows:
    - In areas of minor peeling or flaking the paint should be removed using wet scraping techniques.
    - In areas of extensive peeling and flaking the paint should be removed and more extensive particulate control measures may be required.
    - In areas where lead or mercury-based paint finishes are present and in poor condition, an experienced contractor should be utilized for decommissioning/demolition activities.
    - Steps should be taken to ensure that workers and anyone present in and around areas being dismantled or demolished are protected. The contractor should also ensure that dust generation and migration is minimized.
  - If potential lead, mercury or PCB containing paint finishes that were not sampled during this assessment are encountered in future, samples should be obtained and tested to verify lead, mercury and PCB content. This should be done as soon as the paint is encountered and before it is disturbed.

- **Silica Dust**
  - Silica is expected to be present in the concrete used to construct the foundations and footings of the various Site exterior structures.

- Precautions should be taken to prevent/reduce exposure to silica dust during any disturbance/demolition of silica-containing products, such as wetting the surface of the materials to prevent dust emissions, donning respiratory protection, and cleaning tools and clothing prior to exiting the work area.

- **Creosote**
  - Creosote appears to have been used as a wood preservative on some of the timber used to construct the stairway from the upper landing to the helicopter landing pad and on some of the timber used to construct the foundation posts for the lower landing deck and the spar on the lower landing.
  - Prior to removal and disposal of the Site exterior structures, samples of creosote treated timber should be collected and submitted to a laboratory for applicable TCLP testing. The applicable landfill disposal standards for Treated Wood Waste as listed Table 1 of the Guidance Document for Treated Wood Waste Disposal (GD-PPD-075) should be used to assess the results of the leachability testing to determine disposal options for any creosote treated timber to be removed during demolition activities at the Site.

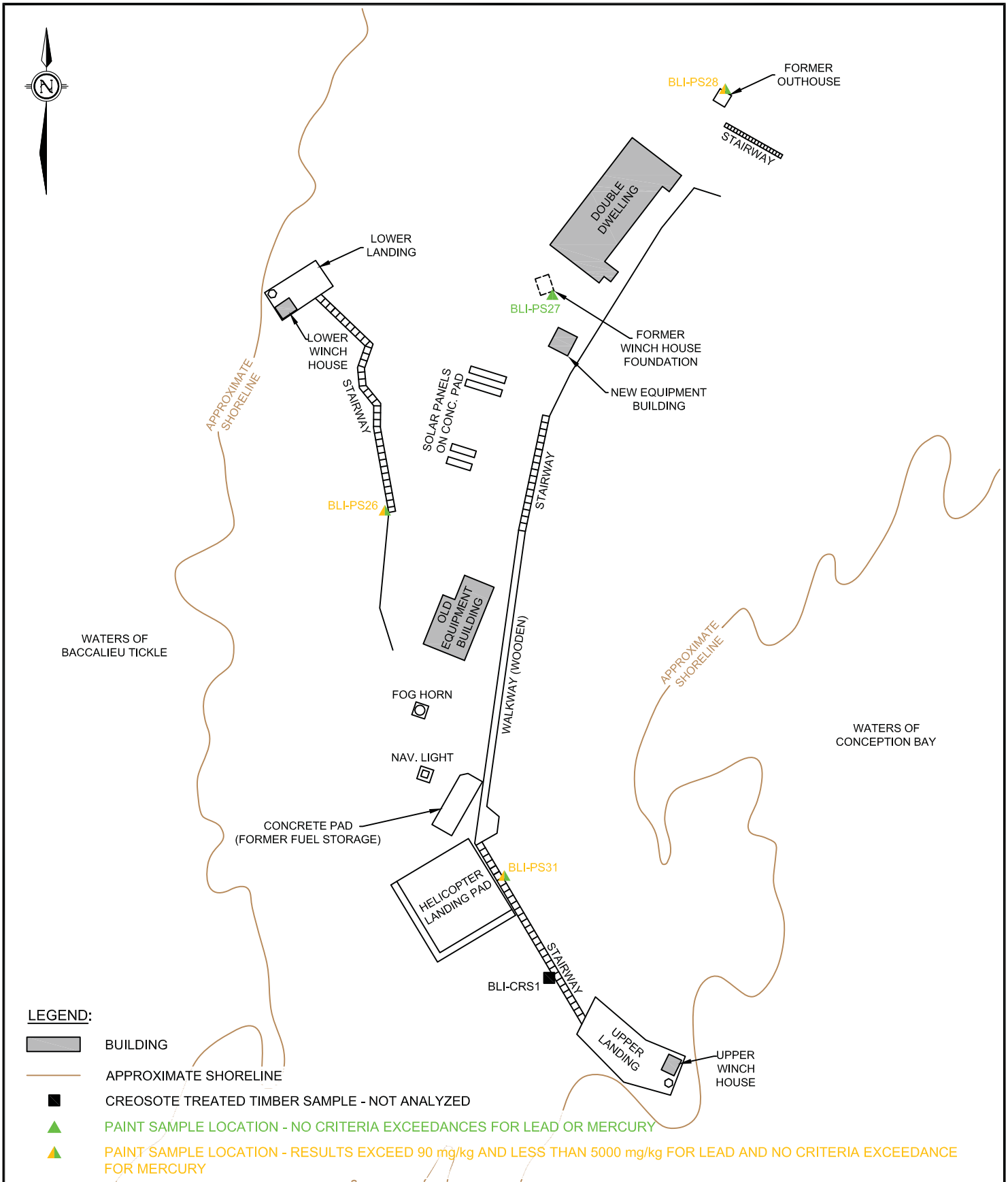
Hazardous materials identified at the Site exterior structures during the demolition HMBA are summarized in Table 6-2.

Table 6-2: Hazardous Material Description

Hazardous Material	Regulatory Guidelines	Location	Quantity (Approx.)	Disposal
Lead-Based Paint	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Stairway railing between old equipment and lower landing; outhouse; stairway between upper landing and helicopter landing pad	-	All painted materials that were sampled and analyzed for lead may be disposed of at a Regional Solid Waste Landfill, provided permission is obtained from the facility.
Silica Dust	American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 2010	Concrete building materials	-	All concrete can be disposed of at a Construction & Demolition Site or at a Regional Solid Waste Disposal Facility.
Creosote Treated Timber	Federal Hazardous Products Act (R.S.1985, c. H-3); NL Department of Environment 2003 Guidance Document for Leachable Toxic Waste and Disposal (GD-PPD-26.1); Federal Transportation of Dangerous Goods Act (1992, c. 34)	Stairway between upper landing and helicopter landing pad; lower landing deck foundation posts and spar	-	Pending TCLP analysis, these materials (creosote treated timber) may be considered hazardous wastes and must be disposed according to NL policy and the Solid Waste Management Authority by an approved hazardous waste disposal company and transported under the federal TDG Act.

APPENDIX A6

FIGURES



NOTES:
1. DO NOT SCALE FROM FIGURE.
2. THIS FIGURE IS INTENDED TO SHOW RELATIVE LOCATIONS AND CONFIGURATION OF THE STUDY AREA IN SUPPORT OF THIS REPORT.
3. ALL LOCATIONS, DIMENSIONS, AND ORIENTATIONS ARE APPROXIMATE.
4. THIS FIGURE SHOULD NOT BE USED FOR PURPOSES OTHER THAN THOSE OUTLINED ABOVE.
5. THIS FIGURE CONTAINS INTELLECTUAL PROPERTY OF PUBLIC WORKS AND GOVERNMENT SERVICES CANADA AND MAY NOT BE REPRODUCED OR COPIED WITHOUT THEIR WRITTEN CONSENT.
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Date: February 2015	Project: DEMOLITION HAZARDOUS BUILDING MATERIALS ASSESSMENT AND INVENTORY, BACCALIEUISLAND LIGHTSTATION (DFRP 80521), BACCALIEU ISLAND, NL		
Drawn by: A. Hollett	Title: SAMPLE LOCATION PLAN - SITE EXTERIOR		
Approved by: L. Wiseman	Scale: 1:750	Project No.: TF14076579	Figure No.: 6.1

APPENDIX B6

PHOTOGRAPHIC RECORD

Photo 1: View of Site exterior structures at Baccalieu Island Lightstation.

Photo 2: View of ladder to upper landing area.

Photo 3: View of upper landing deck and winch house. Note: missing spar and boom.

Photo 4: View of upper landing deck and stairway to helicopter landing pad.

Photo 5: View of upper landing railing and collapsed walkway to double dwelling.

Photo 6: View of damaged fencing near new equipment building.

Photo 7: View of solar array panels and new equipment building.

Photo 8: View of concrete foundation at location of former winch house (BLI-PS27).

Photo 9: View of railing around lookout area next to double dwelling.

Photo 10: View of former outhouse.

Photo 11: View of stairway near former outhouse and double dwelling.

Photo 12: View of stairway to lower landing area.

Photo 13: View of lower landing deck and railing.

Photo 14: View of lower landing deck stairway.

Photo 15: View of lower landing deck, winch house and spar. Note: missing boom.

Photo 16: View of paint sample BLI-PS26.

Photo 17: View of paint sample BLI-PS28.

Photo 18: View of paint sample BLI-PS31.

Photo 19: View of creosote treated wood sample BLI-CRS1.


Photo 20: View of fire extinguisher near helicopter landing pad.


Photo 21: View of fire extinguisher label (dry chemical).

APPENDIX C6

SAMPLE AND ANALYTICAL SUMMARY TABLES

Table C6-1: Paint Sample Descriptions and Lead Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Lead (mg/kg)
BLI-PS26	Red over white paint.	Wood	Railing on Stairway from Old Equipment Building to Lower Landing	5.0	**350**
BLI-PS27	Red paint.	Wood	Former Winch House	5.0	49
BLI-PS28	Grey over red paint.	Wood	Outhouse	5.0	**1,000**
BLI-PS31	Multiple layers of red paint.	Wood	Stairway from Upper Landing to Helicopter Landing Pad	5.0	**860**

Notes:
RDL: Reportable detection limit
<X: Non-detect
HPA: Hazardous Products Act
Bold and underlined results indicate that lead concentration is above the Federal HPA criterion of 90 mg/kg.
Shaded results indicate that lead concentration is above the former Federal HPA criterion of 5,000 mg/kg.

Table C6-2: Paint Sample Descriptions and Mercury Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total Mercury (mg/kg)
BLI-PS26	Red over white paint.	Wood	Railing on Stairway from Old Equipment Building to Lower Landing	1.0	<1.0
BLI-PS27	Red paint.	Wood	Former Winch House	1.0	<1.0
BLI-PS28	Grey over red paint.	Wood	Outhouse	1.0	<1.0
BLI-PS31	Multiple layers of red paint.	Wood	Stairway from Upper Landing to Helicopter Landing Pad	1.0	<1.0

Notes:
RDL: Reportable detection limit
<X: Non-detect
HPA: Hazardous Products Act
Bold and underlined results indicate that mercury concentration is above the Federal HPA criterion of 10 mg/kg.
Shaded results indicate that mercury concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for mercury in soil at an industrial site (50 mg/kg).

Table C6-3: Paint Sample Descriptions and PCB Analytical Results

Sample ID	Colour Description	Substrate	Sample Location (Room No.)	RDL (mg/kg)	Total PCB (mg/kg)
BLI-PS28	Grey over red paint.	Wood	Outhouse	5.0	<5.0
BLI-PS31	Multiple layers of red paint.	Wood	Stairway from Upper Landing to Helicopter Landing Pad	5.0	<5.0

Notes:
RDL: Reportable detection limit
<X: Non-detect
Shaded results indicate that PCB concentration is above the Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSQG) for PCBs in soil at an industrial site (50 mg/kg).

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APPENDICES

7.0 CLOSURE AND LIMITATIONS

7.1 QA/QC DISCUSSION

Details regarding the QC assessment of surrogate recoveries, field duplicate and laboratory blank samples are presented in this section. The QA/QC results are reported on the laboratory certificates of analyses included in Appendix A7.

7.1.1 Surrogate Recoveries

The surrogate (decachlorobiphenyl) recoveries for 12 of the 15 paint samples, plus one (1) field duplicate, analyzed for PCBs were not within the laboratory's acceptable QC limits of 30% - 130%. PCBs were not detected above the reportable detection limits in all of the paint samples analyzed during this assessment. According to Maxxam, an on-going issue with paint samples is the tendency for paints to be attached to the substrates (i.e., drywall, wood, etc.) and these materials often wick or absorb the surrogate rendering it unavailable for recovery.

The surrogate (decachlorobiphenyl) recoveries for the six (6) caulking samples analyzed for PCBs were within the laboratory's acceptable QC limits of 30% - 130%.

7.1.2 Laboratory Blank Samples

Laboratory method blank samples were analyzed for lead, mercury, PCBs and leachable lead. The purpose of the laboratory blank samples were to assess the quality of the laboratory results with respect to the presence/absence of instrument cross contamination at the laboratory.

Analysis of the laboratory blank samples indicated non-detectable concentrations; therefore, no evidence of cross contamination at the laboratory was identified during the laboratory analytical program.

7.1.3 Laboratory Duplicates

The analytical data for the laboratory duplicate paint samples and the original paint samples analyzed for lead, mercury and PCBs were compared as relative percent differences (RPDs). A review of the laboratory duplicate data is summarized in Table 7-1.

Table 7-1: Laboratory Duplicate RPDs

Laboratory Duplicate Sample ID	Original Sample ID	RPD – Lead %	RPD - Mercury %	RPD - PCBs %
BLI-PS3 Lab-Dup	BLI-PS3	15.9	---	NA
BLI-PS7 Lab-Dup	BLI-PS7	NA	NA	---
BLI-PS15 Lab-Dup	BLI-PS15	139.0	31.9	NA
BLI-PS15 Lab-Dup 2	BLI-PS15	5.7	10.4	NA

Notes:
--- denotes sample results are identical (i.e. 0.0%).
NA denotes not applicable.

The poor RPDs for lead and mercury in sample BLI-PS-15 Lab-Dup are likely attributed to sample inhomogeneity.

7.1.4 Field Duplicates

The analytical data for the field duplicate paint samples and the original paint samples analyzed for lead and mercury were compared as RPDs. A review of the field duplicate data is summarized in Table 7-2.

Table 7-2: Field Duplicate RPDs

Duplicate Sample ID	Original Sample ID	RPD – Lead %	RPD - Mercury %	RPD - PCBs %
BLI-PS-DUP1	BLI-PS7	96.5	57.3	---
BLI-PS-DUP2	BLI-PS16	18.2	39.2	NA
BLI-PS-DUP3	BLI-PS23	132.5	22.2	NA

Notes:
--- denotes sample results are identical (i.e. 0.0%).
NA denotes not applicable.

The poor RPDs for lead and mercury in the field duplicate paint samples are likely attributed to sample inhomogeneity.

7.1.5 Summary of QA/QC Discussion

Overall, based on these QC reviews, the analytical results are considered representative of the Site conditions in the immediate vicinity of the sample locations.

7.2 INVENTORY

Copies of room-by-room inspection and inventory sheets for the Site buildings are provided in Appendix B7.

7.3 CLOSURE

This report was prepared for the exclusive use of PWGSC and DFO. The findings of this report are based solely on the conditions of the Site buildings encountered at the time of the Site visit, and are limited by the availability of information at the time of the HBMA, lack of accessibility to areas within the buildings, project scope and budget. The findings of this assessment are based on the interpretation of data from a limited number of areas investigated and analytical results pertaining to specific samples. It is possible that materials exist which could not be reasonably identified within the scope of the HBMA or which were not apparent or accessible during the Site visit. This Report is also subject to the further limitations contained in Appendix C7.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. Should additional parties require reliance on this report, written authorization from Amec Foster Wheeler is required. With respect to third

parties, Amec Foster Wheeler has no liability or responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. This assessment has been carried out using commercially reasonable best efforts consistent with the level and skill ordinarily exercised by members of the profession currently practicing under similar conditions.

Except when otherwise specified, Amec Foster Wheeler disclaims any obligation to update this report for events taking place, or with respect to information that becomes available to Amec Foster Wheeler after the time during which Amec Foster Wheeler conducted the hazardous building materials assessment.

In evaluating the property, Amec Foster Wheeler has relied in good faith on information provided by other individuals noted in this report. Amec Foster Wheeler has assumed that the information provided is factual and accurate. In addition, some of the findings in this report are based upon information provided by the current owner/occupant. Amec Foster Wheeler accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts of persons interviewed or contacted.

Amec Foster Wheeler makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

We trust that the information presented in this report meets your current requirements. Should you have any questions, or concerns, please do not hesitate to contact the undersigned.

Yours truly,

Amec Foster Wheeler Environment & Infrastructure,
A Division of Amec Foster Wheeler Americas Limited

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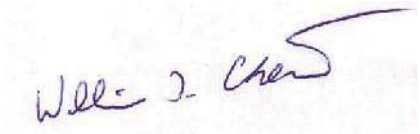

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Environmental Scientist

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APPENDIX A7

LABORATORY CERTIFICATES OF ANALYSES

EMSL Canada Inc.
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EMSL Canada Or	551409851
CustomerID:	55MEEN26
CustomerPO:	TF14076579
ProjectID:	

Attn: **Lori Wiseman**
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133 Crosbie Road
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St. John's, NL A1B 4A5

Phone:	(709) 722-7023
Fax:	(709) 722-7353
Received:	12/22/14 11:37 AM
Analysis Date:	12/31/2014
Collected:	

Project: **TF14076579**

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by PLM via EPA 600/R-93/116 section 2.3

SAMPLE ID	DESCRIPTION	APPEARANCE	% MATRIX MATERIAL	% NON-ASBESTOS FIBERS	ASBESTOS TYPES
BLI-AS6 TILE *551409851-0006*	KITCHEN 1 - VINYL FLOOR TILE WITH BLACK MASTIC	Brown Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS6A MASTIC *551409851-0006A*	KITCHEN 1 - VINYL FLOOR TILE WITH BLACK MASTIC	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS7A MASTIC *551409851-0007A*	KITCHEN 1 - WHITE CRAMIC TILE WITH BIEGE MASTIC	Brown Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS8 *551409851-0008*	KITCHEN 1 - DARK GREEN VINYL COUNTERTOP	Green Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS10 *551409851-0010*	KITCHEN 1 - VINYL SHEET FLOORING WITH FABRIC BACKING	Brown/Various Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS12 *551409851-0012*	BATHROOM 1 - CAULKING	White Fibrous Homogeneous	99.7	None	0.26% Chrysotile
BLI-AS13 TILE *551409851-0013*	BATHROOM 1 - VINYL FLOOR TILE AND VINYL SHEET FLOORING WITH BLACK PAPER BACKING	Beige Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS13A MASTIC *551409851-0013A*	BATHROOM 1 - VINYL FLOOR TILE AND VINYL SHEET FLOORING WITH BLACK PAPER BACKING	Black Fibrous Homogeneous	100	None	<0.25% Chrysotile

Analyst(s)

Anupriya Tyagi (14)
Billy Barnes (10)

Matthew Davis
or other approved signatory

Samples analyzed by EMSL Analytical, Inc. Morrisville, NC

Initial report from 12/31/2014 15:22:54

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Project: **TF14076579**

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SAMPLE ID	DESCRIPTION	APPEARANCE	% MATRIX MATERIAL	% NON-ASBESTOS FIBERS	ASBESTOS TYPES
BLI-AS15 *551409851-0015*	BEDROOM 1-1 - BEIGE ADHESIVE	White/Beige Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS16 *551409851-0016*	BASEMENT 1 - WIRE INSULATION/CASING	Gray/Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS18 *551409851-0018*	BASEMENT 1 - CAULKING	Gray/White Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS22 *551409851-0022*	WORSHOP - VINYL SHEET FLOORING WITH FABRIC BACKING	Gray Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS24 *551409851-0024*	BATHROOM 2 - VINYL FLOOR TILE WITH TAR BACKING	Beige Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS27 *551409851-0027*	DOUBLE DWELLING EXTERIOR - ASPHALT SHINGE	Red/Black Fibrous Homogeneous	100	None	<0.25% Chrysotile
BLI-AS28 *551409851-0028*	DOUBLE DWELLING EXTERIOR - CAULKING	White/Black Fibrous Homogeneous	99.7	None	0.32% Chrysotile
BLI-AS29 *551409851-0029*	DOUBLE DWELLING EXTERIOR - CAULKING	Gray/White Fibrous Homogeneous	99.7	None	0.29% Chrysotile
BLI-AS34 *551409851-0034*	EQUIPMENTBUILDING-ROOM 3 - INSULATION WITH BLACK PAPER BACKING	Brown Fibrous Homogeneous	86.6	13.4 Min. Wool	No Asbestos Detected

Analyst(s)

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Billy Barnes (10)

Matthew Davis
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Project: **TF14076579**

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by PLM via EPA 600/R-93/116 section 2.3

SAMPLE ID	DESCRIPTION	APPEARANCE	% MATRIX MATERIAL	% NON-ASBESTOS FIBERS	ASBESTOS TYPES
BLI-AS35 *551409851-0035*	EQUIPMENT BILDING-EXTERIOR - CAULKING	White Fibrous Homogeneous	99.7	None	0.30% Chrysotile
BLI-AS36 *551409851-0036*	EQUIPMENT BILDING-EXTERIOR - TAR PAPER	Black Fibrous Homogeneous	100	None	<0.25% Chrysotile
BLI-AS37 *551409851-0037*	EQUIPMENT BILDING-EXTERIOR - CAULKING	Gray/White Fibrous Homogeneous	99.6	None	0.40% Chrysotile
BLI-AS39 *551409851-0039*	EQUIPMENT BILDING-EXTERIOR - ASPHALT SHINGLE	Red/Black Fibrous Homogeneous	84.8	15.2 Min. Wool	No Asbestos Detected
BLI-AS40 *551409851-0040*	EQUIPMENT BILDING-EXTERIOR - TAR PAPER WITH CAULKING	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS41 *551409851-0041*	WINCH HOUSE1-EXTERIOR - TAR PAPER WITH TAR	Black Non-Fibrous Homogeneous	100	None	No Asbestos Detected
BLI-AS42 *551409851-0042*	WINCH HOUSE2-EXTERIOR - ASPHALT SHINGLE	Red/Black Non-Fibrous Homogeneous	100	None	<0.30% Chrysotile

Analyst(s)

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Billy Barnes (10)

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Project: **TF14076579**

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

Sample	Description	Appearance	Non-Asbestos %	Fibrous	Non-Asbestos %	Non-Fibrous	Asbestos %	Type
BLI-AS1-Carpet *551409851-0001*	LIVING ROOM 1 - GREY CARPET WITH COLOURED SPECKS	Gray Fibrous Homogeneous	90%	Synthetic	10%	Non-fibrous (other)		**None Detected**
BLI-AS1-Mastic *551409851-0001A*	LIVING ROOM 1 - GREY CARPET WITH COLOURED SPECKS	Beige Fibrous Homogeneous	2%	Cellulose	98%	Non-fibrous (other)		**None Detected**
BLI-AS2-Carpet *551409851-0002*	LIVING ROOM 1 - GREY CARPET WITH BEIGE MASTIC	Gray Fibrous Homogeneous	95%	Synthetic	5%	Non-fibrous (other)		**None Detected**
BLI-AS2-Mastic *551409851-0002A*	LIVING ROOM 1 - GREY CARPET WITH BEIGE MASTIC	Beige Fibrous Homogeneous	2%	Cellulose	98%	Non-fibrous (other)		**None Detected**
BLI-AS3 *551409851-0003*	LIVING ROOM 1 - DRYWALL JOINT COMPOUND	White/Beige Fibrous Homogeneous	2%	Wollastonite	35% 63%	Ca Carbonate Non-fibrous (other)		**None Detected**
			No drywall present in the sample.					
BLI-AS4 *551409851-0004*	LIVING ROOM 1 - DRYWALL JOINT COMPOUND	White/Beige Fibrous Homogeneous	15% <1%	Cellulose Wollastonite	85%	Non-fibrous (other)	**<1%**	**Chrysotile**
			This is a composite result of drywall, jt. compound, and tape.					

Analyst(s)

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Initial report from 12/31/2014 15:22:54

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Received:	12/22/14 11:37 AM
Analysis Date:	12/31/2014
Collected:	

Project: **TF14076579**

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**
BLI-AS5 *551409851-0005*	LIVING ROOM 1 - DRYWALL JOINT COMPOUND	White/Beige Fibrous Homogeneous	2% <1%	Wollastonite Cellulose	40% 58%	Ca Carbonate Non-fibrous (other)	**None Detected**
			No drywall present in the sample.				
BLI-AS7 TILE *551409851-0007*	KITCHEN 1 - WHITE CRAMIC TILE WITH BIEGE MASTIC	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
BLI-AS9 *551409851-0009*	KITCHEN 1 - INCANDESCEN LIGHT HEAT SHIELD	Gray/Silver Fibrous Homogeneous	85%	Glass	15%	Non-fibrous (other)	**None Detected**
BLI-AS11 *551409851-0011*	KITCHEN 1 - GREY INSULATION	Gray Fibrous Homogeneous	80% 10%	Cellulose Synthetic	10%	Non-fibrous (other)	**None Detected**
BLI-AS14 *551409851-0014*	BEDROOM 1-1 - FOAM INSULATION	Yellow Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
BLI-AS17 *551409851-0017*	BASEMENT 1 - BRICK MORTAR	Gray Fibrous Homogeneous	2%	Cellulose	98%	Non-fibrous (other)	**None Detected**
BLI-AS19-Insulation *551409851-0019*	WORSHOP - INSULATION WITH PAPER BACKING	White Fibrous Homogeneous	95%	Min. Wool	5%	Non-fibrous (other)	**None Detected**

Analyst(s)

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Received:	12/22/14 11:37 AM
Analysis Date:	12/31/2014
Collected:	

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**
BLI-AS19-Backing *551409851-0019A*	WORSHOP - INSULATION WITH PAPER BACKING	Brown/Black Fibrous Homogeneous	70% 5%	Cellulose Glass	25%	Non-fibrous (other)		**None Detected**
BLI-AS20 *551409851-0020*	WORSHOP - DRYWALL JOINT COMPOUND	Beige Fibrous Homogeneous	<1%	Wollastonite	30% 67%	Ca Carbonate Non-fibrous (other)	**3%**	**Chrysotile**
			No drywall present in the sample.					
BLI-AS21 *551409851-0021*	WORSHOP - DRYWALL JOINT COMPOUND	Beige Fibrous Homogeneous	2%	Wollastonite	45% 50%	Ca Carbonate Non-fibrous (other)	**3%**	**Chrysotile**
			No drywall present in the sample.					
BLI-AS23-Insulation *551409851-0023*	WORSHOP - INSULATION WITH BLACK PAPER BACKING	White Fibrous Homogeneous	95%	Min. Wool	5%	Non-fibrous (other)		**None Detected**
BLI-AS23-Backing *551409851-0023A*	WORSHOP - INSULATION WITH BLACK PAPER BACKING	Brown/Black Fibrous Homogeneous	70% 10%	Cellulose Glass	20%	Non-fibrous (other)		**None Detected**
BLI-AS25 *551409851-0025*	BATHROOM 2 - DRYWALL JOINT COMPOUND	Beige Fibrous Homogeneous	2%	Wollastonite	40% 55%	Ca Carbonate Non-fibrous (other)	**3%**	**Chrysotile**
			No drywall present in the sample.					
BLI-AS26 *551409851-0026*	WORKSHOP - GROUT OR MORTAR	Gray Fibrous Homogeneous	2%	Cellulose	98%	Non-fibrous (other)		**None Detected**

Analyst(s)

Anupriya Tyagi (26)

Matthew Davis
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Initial report from 12/31/2014 15:22:54

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Project: **TF14076579**

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**
BLI-AS30 *551409851-0030*	EQUIPMENTBUILDING-ROOM 1 - DRYWALL JOINT COMPOUND	Beige Fibrous Homogeneous	2% Wollastonite	30% Ca Carbonate 65% Non-fibrous (other)		**3% Chrysotile**
			No drywall present in the sample.			
BLI-AS31-Insulation *551409851-0031*	EQUIPMENTBUILDING-ROOM 3 - INSULATION WITH PAPER BACKING	Pink Fibrous Homogeneous	95% Min. Wool	5% Non-fibrous (other)		**None Detected**
BLI-AS31-Backing *551409851-0031A*	EQUIPMENTBUILDING-ROOM 3 - INSULATION WITH PAPER BACKING	Brown/Black Fibrous Homogeneous	70% Cellulose 5% Glass	25% Non-fibrous (other)		**None Detected**
BLI-AS32 *551409851-0032*	EQUIPMENTBUILDING-ROOM 3 - DRYWALL JOINT COMPOUND	Beige Fibrous Homogeneous	2% Wollastonite	35% Ca Carbonate 61% Non-fibrous (other)		**2% Chrysotile**
			No drywall present in the sample.			
BLI-AS33 *551409851-0033*	EQUIPMENTBUILDING-ROOM 3 - DRYWALL JOINT COMPOUND	Beige Fibrous Homogeneous	2% Wollastonite 2% Cellulose	93% Non-fibrous (other)		**3% Chrysotile**
			No drywall present in the sample.			
BLI-AS38 *551409851-0038*	EQUIPMENT BILDING-ROOM 2 - DDRYWALL JOINT COMPOUND	Beige Fibrous Homogeneous	2% Cellulose 2% Wollastonite	93% Non-fibrous (other)		**3% Chrysotile**
			No drywall present in the sample.			

Analyst(s)

Anupriya Tyagi (26)

Matthew Davis
or other approved signatory

Initial report from 12/31/2014 15:22:54

Your P.O. #: TF14076579
Your Project #: TF14076579
Site Location: BACCALIEU ISLAND HAZARDOUS BUILDING MATERIALS ASSESSMENT
Your C.O.C. #: N/A

Attention:Lori Wiseman

AMEC Environment & Infrastructure
St John's - Standing Offer
PO Box 13216
133 Crosbie Rd, Suite 202
St John's, NL
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Report Date: 2015/01/12
Report #: R3283637
Version: 3 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4O2216
Received: 2014/12/22, 15:46

Sample Matrix: Paint
Samples Received: 34

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Metals Leach TCLP/CGSB extraction	10	2015/01/08	2015/01/08	ATL SOP 00058	EPA 6020A R1 m
Metals Paint Acid Extr. ICPMS	16	2014/12/29	2014/12/29	ATL SOP 00058	EPA 6020A R1 m
Metals Paint Acid Extr. ICPMS	15	2014/12/29	2014/12/30	ATL SOP 00058	EPA 6020A R1 m
Metals Paint Acid Extr. ICPMS	3	2014/12/31	2014/12/31	ATL SOP 00058	EPA 6020A R1 m
PCBs in Paint by GC/ECD (1)	16	2015/01/06	2015/01/09		EPA 8082 m
PCB Aroclor sum (paint)	16	N/A	2015/01/09		Auto Calc.
TCLP Inorganic extraction - pH	10	N/A	2015/01/08	ATL SOP 00035	EPA 1311 m
TCLP Inorganic extraction - Weight	10	N/A	2015/01/08	ATL SOP 00035	EPA 1311 m

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
PCBs in Solid by GC/ECD (2)	6	2014/12/23	2014/12/30	ATL SOP 00105	EPA 8082 m
PCB Aroclor sum (solid)	6	N/A	2014/12/30		Auto Calc.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Non accredited test method. Best laboratory practices and all routine QC procedures were employed.
(2) Samples were analyzed for PCB using an accredited standard procedure modified for a non-standard matrix. Best laboratory practice and all routine QC procedures were employed. The accreditation does not extend to the matrix analyzed.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B4O2216
Report Date: 2015/01/12

AMEC Environment & Infrastructure
Client Project #: TF14076579
Site Location: BACCALIEU ISLAND HAZARDOUS BUILDING MATERIALS ASSESSMENT
Your P.O. #: TF14076579
Sampler Initials: SD

RESULTS OF ANALYSES OF PAINT

Maxxam ID		YY6007	YY6009	YY6010	YY6011	YY6012	YY6013	YY6015	
Sampling Date		2014/12/16	2014/12/16	2014/12/16	2014/12/16	2014/12/16	2014/12/16	2014/12/17	
COC Number		N/A	N/A	N/A	N/A	N/A			
	Units	**BLI-PS5**	**BLI-PS7**	**BLI-PS8**	**BLI-PS9**	**BLI-PS10**	**BLI-PS11**	**BLI-PS13**	**QC Batch**
Inorganics									
Sample Weight (as received)	g	50	21	50	8.9	8.6	27	50	3879741
Initial pH	N/A	6.3	NA	6.8	NA	NA	NA	8.3	3879747
Final pH	N/A	5.2	5.9	5.0	6.0	6.0	5.4	5.4	3879747
QC Batch = Quality Control Batch									

Maxxam ID		YY6016	YY6019	YY6022	
Sampling Date		2014/12/17	2014/12/17	2014/12/17	
COC Number					
	Units	**BLI-PS14**	**BLI-PS17**	**BLI-PS20**	**QC Batch**
Inorganics					
Sample Weight (as received)	g	49	50	1.5	3879741
Initial pH	N/A	NA	7.4	NA	3879747
Final pH	N/A	6.0	6.0	5.1	3879747
QC Batch = Quality Control Batch					

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B4O2216
Report Date: 2015/01/12

AMEC Environment & Infrastructure
Client Project #: TF14076579
Site Location: BACCALIEU ISLAND HAZARDOUS BUILDING MATERIALS ASSESSMENT
Your P.O. #: TF14076579
Sampler Initials: SD

ELEMENTS BY ICP/MS (PAINT)

Maxxam ID		YY6007	YY6009	YY6010	YY6011	YY6012	YY6013	YY6015		
Sampling Date		2014/12/16	2014/12/16	2014/12/16	2014/12/16	2014/12/16	2014/12/16	2014/12/17		
COC Number		N/A	N/A	N/A	N/A	N/A				
	Units	**BLI-PS5**	**BLI-PS7**	**BLI-PS8**	**BLI-PS9**	**BLI-PS10**	**BLI-PS11**	**BLI-PS13**	**RDL**	**QC Batch**
Metals										
Leachable Lead (Pb)	ug/L	14000	9600	6900	80000	75000	38000	16000	5.0	3879696

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		YY6016	YY6019	YY6022		
Sampling Date		2014/12/17	2014/12/17	2014/12/17		
COC Number						
	Units	**BLI-PS14**	**BLI-PS17**	**BLI-PS20**	**RDL**	**QC Batch**
Metals						
Leachable Lead (Pb)	ug/L	4700	350	4100	5.0	3879696

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4O2216
Report Date: 2015/01/12

AMEC Environment & Infrastructure
Client Project #: TF14076579
Site Location: BACCALIEU ISLAND HAZARDOUS BUILDING MATERIALS ASSESSMENT
Your P.O. #: TF14076579
Sampler Initials: SD

ELEMENTS BY ATOMIC SPECTROSCOPY (PAINT)

Maxxam ID		YY6003		YY6004		YY6005	YY6005		
Sampling Date		2014/12/16		2014/12/16		2014/12/16	2014/12/16		
COC Number		N/A		N/A		N/A	N/A		
	Units	**BLI-PS1**	**QC Batch**	**BLI-PS2**	**QC Batch**	**BLI-PS3**	**BLI-PS3 Lab-Dup**	**RDL**	**QC Batch**
Metals									
Acid Extractable Lead (Pb)	mg/kg	300	3871971	140	3873149	290	340	5.0	3871971
Acid Extractable Mercury (Hg)	mg/kg	<1.0	3871971	<1.0	3873149	<1.0	<1.0	1.0	3871971

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		YY6006		YY6007		YY6008		YY6009		
Sampling Date		2014/12/16		2014/12/16		2014/12/16		2014/12/16		
COC Number		N/A		N/A		N/A		N/A		
	Units	**BLI-PS4**	**QC Batch**	**BLI-PS5**	**QC Batch**	**BLI-PS6**	**QC Batch**	**BLI-PS7**	**RDL**	**QC Batch**
Metals										
Acid Extractable Lead (Pb)	mg/kg	3200	3873149	12000	3871971	440	3873149	6300	5.0	3871971
Acid Extractable Mercury (Hg)	mg/kg	3.1	3873149	16	3871971	13	3873149	6.1	1.0	3871971

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		YY6010	YY6011	YY6012	YY6013	YY6014	YY6015	YY6016		
Sampling Date		2014/12/16	2014/12/16	2014/12/16	2014/12/16	2014/12/16	2014/12/17	2014/12/17		
COC Number		N/A	N/A	N/A						
	Units	**BLI-PS8**	**BLI-PS9**	**BLI-PS10**	**BLI-PS11**	**BLI-PS12**	**BLI-PS13**	**BLI-PS14**	**RDL**	**QC Batch**
Metals										
Acid Extractable Lead (Pb)	mg/kg	27000	36000	20000	29000	32	18000	7100	5.0	3871971
Acid Extractable Mercury (Hg)	mg/kg	14	2.0	<1.0	13	<1.0	2.3	15	1.0	3871971

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ATOMIC SPECTROSCOPY (PAINT)

Maxxam ID		YY6017	YY6017	YY6017		YY6018	YY6019	YY6020		
Sampling Date		2014/12/17	2014/12/17	2014/12/17		2014/12/17	2014/12/17	2014/12/17		
COC Number										
	Units	**BLI-PS15**	**BLI-PS15 Lab-Dup**	**BLI-PS15 Lab-Dup 2**	**QC Batch**	**BLI-PS16**	**BLI-PS17**	**BLI-PS18**	**RDL**	**QC Batch**
Metals										
Acid Extractable Lead (Pb)	mg/kg	3600	20000 (1)	3400	3871973	2400	20000	2500	5.0	3871971
Acid Extractable Mercury (Hg)	mg/kg	7.1	9.8	6.4	3871973	6.4	7.9	3.4	1.0	3871971

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
(1) Poor RPD due to sample inhomogeneity. The sample was re-digested for confirmation.

Maxxam ID		YY6021	YY6022		YY6038	YY6039	YY6040	YY6041		
Sampling Date		2014/12/17	2014/12/17		2014/12/17	2014/12/17	2014/12/17	2014/12/17		
COC Number										
	Units	**BLI-PS19**	**BLI-PS20**	**QC Batch**	**BLI-PS21**	**BLI-PS22**	**BLI-PS23**	**BLI-PS24**	**RDL**	**QC Batch**
Metals										
Acid Extractable Lead (Pb)	mg/kg	3400	11000	3871971	1300	2100	640	1200	5.0	3871973
Acid Extractable Mercury (Hg)	mg/kg	6.2	<1.0	3871971	2.7	6.3	8.8	<1.0	1.0	3871973

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		YY6042	YY6043	YY6044	YY6045	YY6046	YY6047	YY6049		
Sampling Date		2014/12/17	2014/12/17	2014/12/17	2014/12/17	2014/12/17	2014/12/17	2014/12/17		
COC Number										
	Units	**BLI-PS25**	**BLI-PS26**	**BLI-PS27**	**BLI-PS28**	**BLI-PS29**	**BLI-PS30**	**BLI-PS31**	**RDL**	**QC Batch**
Metals										
Acid Extractable Lead (Pb)	mg/kg	440	350	49	1000	990	830	860	5.0	3871973
Acid Extractable Mercury (Hg)	mg/kg	<1.0	<1.0	<1.0	<1.0	6.2	<1.0	<1.0	1.0	3871973

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ATOMIC SPECTROSCOPY (PAINT)

Maxxam ID		YY6050	YY6051	YY6052		
Sampling Date		2014/12/16	2014/12/17	2014/12/17		
COC Number						
	Units	**BLI-PS-DUP1**	**BLI-PS-DUP2**	**BLI-PS-DUP3**	**RDL**	**QC Batch**
Metals						
Acid Extractable Lead (Pb)	mg/kg	2200	2000	130	5.0	3871973
Acid Extractable Mercury (Hg)	mg/kg	11	4.3	11	1.0	3871973

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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POLYCHLORINATED BIPHENYLS BY GC-ECD (PAINT)

Maxxam ID		YY6009	YY6009	YY6012	YY6014		YY6017		YY6018		
Sampling Date		2014/12/16	2014/12/16	2014/12/16	2014/12/16		2014/12/17		2014/12/17		
COC Number		N/A	N/A	N/A							
	Units	**BLI-PS7**	**BLI-PS7 Lab-Dup**	**BLI-PS10**	**BLI-PS12**	**RDL**	**BLI-PS15**	**RDL**	**BLI-PS16**	**RDL**	**QC Batch**
PCBs											
Aroclor 1016	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	<10	10	<5.0	5.0	3877662
Aroclor 1221	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	<10	10	<5.0	5.0	3877662
Aroclor 1232	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	<10	10	<5.0	5.0	3877662
Aroclor 1248	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	<10	10	<5.0	5.0	3877662
Aroclor 1242	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	<10	10	<5.0	5.0	3877662
Aroclor 1254	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	<10	10	<5.0	5.0	3877662
Aroclor 1260	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	<10	10	<5.0	5.0	3877662
Calculated Total PCB	mg/kg	<5.0		<5.0	<5.0	5.0	<10	10	<5.0	5.0	3869202
Surrogate Recovery (%)											
Decachlorobiphenyl	%	6.2 (1)	11 (1)	11 (1)	18 (1)		40 (2)		29 (1)		3877662

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
(1) PCB surrogate not within acceptance limits. Analysis was repeated with similar results.
(2) Elevated PCB RDL due to matrix / co-extractive interference.

Maxxam ID		YY6020	YY6021	YY6022	YY6038	YY6039	YY6041	YY6045		
Sampling Date		2014/12/17	2014/12/17	2014/12/17	2014/12/17	2014/12/17	2014/12/17	2014/12/17		
COC Number										
	Units	**BLI-PS18**	**BLI-PS19**	**BLI-PS20**	**BLI-PS21**	**BLI-PS22**	**BLI-PS24**	**BLI-PS28**	**RDL**	**QC Batch**
PCBs										
Aroclor 1016	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1221	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1232	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1248	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1242	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1254	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1260	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Calculated Total PCB	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3869202
Surrogate Recovery (%)										
Decachlorobiphenyl	%	21 (1)	12 (1)	12 (1)	37	18 (1)	21 (1)	11 (1)		3877662

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) PCB surrogate not within acceptance limits. Analysis was repeated with similar results.

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Report Date: 2015/01/12

AMEC Environment & Infrastructure
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POLYCHLORINATED BIPHENYLS BY GC-ECD (PAINT)

Maxxam ID		YY6046	YY6047	YY6049	YY6050		
Sampling Date		2014/12/17	2014/12/17	2014/12/17	2014/12/16		
COC Number							
	Units	**BLI-PS29**	**BLI-PS30**	**BLI-PS31**	**BLI-PS-DUP1**	**RDL**	**QC Batch**
PCBs							
Aroclor 1016	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1221	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1232	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1248	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1242	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1254	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Aroclor 1260	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	3877662
Calculated Total PCB	mg/kg	<5.0	<5.0	<5.0	<5.0	5.0	3869202
Surrogate Recovery (%)							
Decachlorobiphenyl	%	9.0 (1)	58	15 (1)	14 (1)		3877662

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) PCB surrogate not within acceptance limits. Analysis was repeated with similar results.

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POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID		YY6053	YY6054	YY6055	YY6056	YY6057	YY6058		
Sampling Date		2014/12/16	2014/12/16	2014/12/16	2014/12/16	2014/12/17	2014/12/17		
	Units	**BLI-AS12**	**BLI-AS18**	**BLI-AS28**	**BLI-AS29**	**BLI-AS35**	**BLI-AS37**	**RDL**	**QC Batch**
PCBs									
Aroclor 1016	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	3869753
Aroclor 1221	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	3869753
Aroclor 1232	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	3869753
Aroclor 1248	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	3869753
Aroclor 1242	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	3869753
Aroclor 1254	mg/kg	<0.50	<0.50	<0.50	<0.50	0.51	<0.50	0.50	3869753
Aroclor 1260	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	3869753
Calculated Total PCB	mg/kg	<0.50	<0.50	<0.50	<0.50	0.51	<0.50	0.50	3868264
Surrogate Recovery (%)									
Decachlorobiphenyl	%	91	87	88	95	100	114		3869753

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Revised report: Revised to include TCLP Leachate + Lead analysis on samples
BLI-PS5
BLI-PS7
BLI-PS8
BLI-PS9
BLI-PS10
BLI-PS11
BLI-PS13
BLI-PS14
BLI-PS17
BLI-PS20

as requested by L. Wiseman 2015/01/07 MHL

Sample YY6009-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample YY6011-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample YY6012-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample YY6013-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample YY6016-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Sample YY6022-01 : Method Deviation Comment: Reduced sample weight used for leachate procedure due to insufficient sample. All extraction ratios maintained. Minimal impact on sample data quality.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

AMEC Environment & Infrastructure
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Site Location: MATERIALS ASSESSMENT
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			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3869753	Decachlorobiphenyl	2014/12/30	96	30 - 130	108	30 - 130	90	%		
3877662	Decachlorobiphenyl	2015/01/09	13 (2)	30 - 130	57	30 - 130	85	%		
3869753	Aroclor 1016	2014/12/30					<0.50	mg/kg	NC	50
3869753	Aroclor 1221	2014/12/30					<0.50	mg/kg	NC	50
3869753	Aroclor 1232	2014/12/30					<0.50	mg/kg	NC	50
3869753	Aroclor 1242	2014/12/30					<0.50	mg/kg	NC	50
3869753	Aroclor 1248	2014/12/30					<0.50	mg/kg	NC	50
3869753	Aroclor 1254	2014/12/30					<0.50	mg/kg	NC	50
3869753	Aroclor 1260	2014/12/30	83	30 - 130	86	30 - 130	<0.50	mg/kg	NC	50
3871971	Acid Extractable Lead (Pb)	2014/12/29	NC	75 - 125	96	75 - 125	<5.0	mg/kg	16	35
3871971	Acid Extractable Mercury (Hg)	2014/12/29	102	75 - 125	103	75 - 125	<1.0	mg/kg	NC	35
3871973	Acid Extractable Lead (Pb)	2014/12/30	NC	75 - 125	98	75 - 125	<5.0	mg/kg	139 (1)	35
3871973	Acid Extractable Mercury (Hg)	2014/12/30	NC	75 - 125	104	75 - 125	<1.0	mg/kg	32	35
3873149	Acid Extractable Lead (Pb)	2014/12/31	NC	75 - 125	99	75 - 125	<5.0	mg/kg	0.49	35
3873149	Acid Extractable Mercury (Hg)	2014/12/31	99	75 - 125	107	75 - 125	<1.0	mg/kg		
3877662	Aroclor 1016	2015/01/09					<5.0	mg/kg	NC	50
3877662	Aroclor 1221	2015/01/09					<5.0	mg/kg	NC	50
3877662	Aroclor 1232	2015/01/09					<5.0	mg/kg	NC	50
3877662	Aroclor 1242	2015/01/09					<5.0	mg/kg	NC	50
3877662	Aroclor 1248	2015/01/09					<5.0	mg/kg	NC	50
3877662	Aroclor 1254	2015/01/09	24 (3)	30 - 130	102	30 - 130	<5.0	mg/kg	NC	50
3877662	Aroclor 1260	2015/01/09					<5.0	mg/kg	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

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			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3879696	Leachable Lead (Pb)	2015/01/08	94	75 - 125	100	80 - 120	<5.0	ug/L		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Poor RPD due to sample inhomogeneity. The sample was re-digested for confirmation.

(2) PCB surrogate not within acceptance limits. Analysis was repeated with similar results.

(3) Matrix Spike: results are outside acceptance limit. Analysis was repeated with similar results.

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Site Location: BACCALIEU ISLAND HAZARDOUS BUILDING MATERIALS ASSESSMENT
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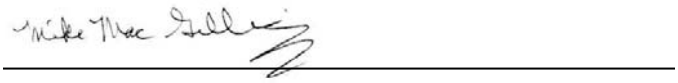
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Alan Stewart, Scientific Specialist (Organics)

Eric Dearman, Scientific Specialist



Mike MacGillivray, Scientific Specialist (Inorganics)

Rose MacDonald, Scientific Specialist (Organics)

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MAXXAM Chain of Custody Record

COC#: Page 1 of 5

This column for lab use only :
Client Code: 10970
Maxxam Job#: B402216

Cooler Id	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp

Integrity: YES (NO) Integrity/Checklist by: BM
Labelled by: Location/Bin#: 26

INVOICE INFORMATION:
Company Name: AMEC Environment & Infrastructure
Contact Name: Lori Wiseman
Address: 133 Crosbie Road
St. John's, NL Postal Code A1B 4A5
Email: lori.wiseman@amecfw.com
Ph: 7097227023 Fax: 7097227353

REPORT INFORMATION (if differs from invoice):
Company Name: Same
Contact Name:
Address:
Postal Code
Email:
Ph: Fax:

PO# TF14076579
Project # / Phase# TF14076579
ProjectName/Site Location: Baccalieu Island Hazardous Building Materials Assessment
Quote: AMEC 2014 SO
Site #:
Task Order#:
Sampled by: Stephen Downer

TURNAROUND TIME
Standard ☑
10 day ☐
If RUSH Specify Date:
Pre-schedule rush work
Charge for # Jars used but not submitted

Guideline Requirements/ Detection Limits/ Special Instructions

Federal Hazardous Products Act;
NL Depart. of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal; CCME CSQG

* Specify Matrix; Surface/Salt/Ground/Tapwater/Sewage/Effluent/Potable/NonPotable/Tissue/Soil/Sludge/Metal/Seawater

Field Sample Identification	Matrix *	Date/Time Sampled	# & type of bottles	Field Filtered & Preserved	Lab Filtration Required	RCAP-30 Choose ☐Total or ☐Diss Metals	RCAP-MS Choose ☐Total or ☐Diss Metals	Metals Water: Total Digest(Default Method) for well water, surface water	Metals Water: Dissolved for ground water	Metals Water: Mercury	Metals Soil: Metals & Mercury Default Available Digest Method	Metals Soil: Metals Total Digest -for Ocean sediments (HNO3/HF/HClO4)	Metals Soil: Mercury Low level by Cold Vapour AA	Metals Soil: Selenium (low level) Req'd for CCME Residential, Parklands, Agricultural	Metals Soil: Hot Water soluble Boron (required for CCME Agricultural)	Hydrocarbons: RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons: Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX ,C6-C32	Hydrocarbons: NB Potable Water BTEX, VPH, Low level T.E.H	Hydrocarbons: TPH Fractionation	Hydrocarbons: PAH's	Hydrocarbons: PAH's with Acridine,Quinoline	Lead and Mercury	PCBs			
1 BLI-PS1	Paint	Dec. 16, 2014	Baggie																			X				
2 BLI-PS2	Paint	Dec. 16, 2014	Baggie																			X				
3 BLI-PS3	Paint	Dec. 16, 2014	Baggie																			X				
4 BLI-PS4	Paint	Dec. 16, 2014	Baggie																			X				
5 BLI-PS5	Paint	Dec. 16, 2014	Baggie																			X				
6 BLI-PS6	Paint	Dec. 16, 2014	Baggie																			X				
7 BLI-PS7	Paint	Dec. 16, 2014	Baggie																			X	X			
8 BLI-PS8	Paint	Dec. 16, 2014	Baggie																			X				
9 BLI-PS9	Paint	Dec. 16, 2014	Baggie																			X				
10 BLI-PS10	Paint	Dec. 16, 2014	Baggie																			X	X			

B402216

Please analyze paint and substrate for applicable samples. Hold remaining samples for possible TCLP.

RELINQUISHED BY: (Signature/Print)	Date	Time	RECEIVED BY: (Signature/Print)	Date	Time
Lori Wiseman	19/12/2014	11:45 a.m.	SARA MASSON		

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2014 DEC 22 15:46

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MAXXAM Chain of Custody Record

COC#: Page 2 of 5

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Maxxam Job#: B402216

Cooler Id	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp

Integrity: YES (NO) Integrity/Checklist by: SM
Labelled by: Location/Bin#: 26

INVOICE INFORMATION:
Company Name: AMEC Environment & Infrastructure
Contact Name: Lori Wiseman
Address: 133 Crosbie Road
St. John's, NL Postal Code A1B 4A5
Email: lori.wiseman@amecfw.com
Ph: 7097227023 Fax: 7097227353

REPORT INFORMATION (if differs from invoice):
Company Name: Same
Contact Name:
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Ph: Fax:

PO# TF14076579
Project # / Phase# TF14076579
ProjectName/Site Location: Baccalieu Island Hazardous Building Materials Assessment
Quote: AMEC 2014 SO
Site #:
Task Order#:
Sampled by: Stephen Downer

TURNAROUND TIME
Standard ☑
10 day ☐
If RUSH Specify Date:
Pre-schedule rush work
Charge for # Jars used but not submitted

Guideline Requirements/ Detection Limits/ Special Instructions

Federal Hazardous Products Act;
NL Depart. of Environment, 2003 Guidance Document for Leachable Toxic Waste, Testing and Disposal; CCME CSQG

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Field Sample Identification	Matrix *	Date/Time Sampled	# & type of bottles	Field Filtered & Preserved	Lab Filtration Required	RCAP-30 (Choose Total or Diss Metals)	RCAP-MS (Choose Total or Diss Metals)	Metals Water: Total Digest(Default Method) for well water, surface water	Metals Water: Dissolved for ground water	Metals Water: Mercury	Metals Soil: Metals & Mercury Default Available Digest Method	Metals Soil: Metals Total Digest -for Ocean sediments (HNO3/HF/HCLO4)	Metals Soil: Mercury Low level by Cold Vapour AA	Metals Soil: Selenium (low level) Req'd for CCME Residential, Parklands, Agricultural	Metals Soil: Hot Water soluble Boron (required for CCME Agricultural)	Hydrocarbons: RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons: Soil (Potable); NS Fuel Oil Spill Policy Low Level BTEX ,C6-C32	Hydrocarbons: NB Potable Water BTEX, VPH, Low level T.E.H	Hydrocarbons: TPH Fractionation	Hydrocarbons: PAH's	Hydrocarbons: PAH's with Acridine,Quinoline	Lead and Mercury	PCBs			
1 BLI-PS11	Paint	Dec. 16, 2014	Baggie																			X				
2 BLI-PS12	Paint	Dec. 16, 2014	Baggie																			X	X			
3 BLI-PS13	Paint	Dec. 17, 2014	Baggie																			X				
4 BLI-PS14	Paint	Dec. 17, 2014	Baggie																			X				
5 BLI-PS15	Paint	Dec. 17, 2014	Baggie																			X	X			
6 BLI-PS16	Paint	Dec. 17, 2014	Baggie																			X	X			
7 BLI-PS17	Paint	Dec. 17, 2014	Baggie																			X				
8 BLI-PS18	Paint	Dec. 17, 2014	Baggie																			X	X			
9 BLI-PS19	Paint	Dec. 17, 2014	Baggie																			X	X			
10 BLI-PS20	Paint	Dec. 17, 2014	Baggie																			X	X			

Please analyze paint and substrate for applicable samples. Hold remaining samples for possible TCLP.

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Lori Wiseman	19/12/2014	11:45 a.m.	Sara Mason SARA MASON	2014 DEC 22	15:46

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MAXXAM Chain of Custody Record

COC#: Page 3 of 5

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Client Code
Maxxam Job# B402216

Cooler Id	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp

Integrity: YES (NO) Integrity/Checklist by: SM
Labelled by: Location/Bin#: 26

INVOICE INFORMATION:
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Ph: 7097227023 Fax: 7097227353

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Ph: Fax:

PO# TF14076579
Project # / Phase# TF14076579
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Quote: AMEC 2014 SO
Site #
Task Order#
Sampled by: Stephen Downer

TURNAROUND TIME
Standard ☑
10 day ☐
If RUSH Specify Date:
Pre-schedule rush work
Charge for # Jars used but not submitted

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1 BLI-PS21	Paint	Dec. 17, 2014	Baggie																			X	X			
2 BLI-PS22	Paint	Dec. 17, 2014	Baggie																			X	X			
3 BLI-PS23	Paint	Dec. 17, 2014	Baggie																			X				
4 BLI-PS24	Paint	Dec. 17, 2014	Baggie																			X	X			
5 BLI-PS25	Paint	Dec. 17, 2014	Baggie																			X				
6 BLI-PS26	Paint	Dec. 17, 2014	Baggie																			X				
7 BLI-PS27	Paint	Dec. 17, 2014	Baggie																			X				
8 BLI-PS28	Paint	Dec. 17, 2014	Baggie																			X	X			
9 BLI-PS29	Paint	Dec. 17, 2014	Baggie																			X	X			
10 BLI-PS30	Paint	Dec. 17, 2014	Baggie																			X	X			

Please analyze paint and substrate for applicable samples. Hold remaining samples for possible TCLP.

RELINQUISHED BY: (Signature/Print)	Date	Time	RECEIVED BY: (Signature/Print)	Date	Time
Lori Wiseman	19/12/2014	11:45 a.m.	Sara Mason SARA MASON	DEC 22	15:47

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MAXXAM Chain of Custody Record

COC#: Page 4 of 5

This column for lab use only :
Client Code
Maxxam Job#: B402216

Cooler Id	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp

Integrity: YES (NO) Integrity/Checklist by: SM
Labelled by: Location/Bin#: 15

INVOICE INFORMATION:
Company Name: AMEC Environment & Infrastructure
Contact Name: Lori Wiseman
Address: 133 Crosbie Road
St. John's, NL Postal Code A1B 4A5
Email: lori.wiseman@amecfw.com
Ph: 7097227023 Fax: 7097227353

REPORT INFORMATION (if differs from invoice):
Company Name: Same
Contact Name:
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Email:
Ph: Fax:

PO# TF14076579
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Quote: AMEC 2014 SO
Site #
Task Order#
Sampled by: Stephen Downer

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10 day ☐
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1	BLI-PS31	Paint	Dec. 17, 2014	Baggie																		X	X
2	BLI-PS-DUP1	Paint	Dec. 16, 2014	Baggie																		X	X
3	BLI-PS-DUP2	Paint	Dec. 17, 2014	Baggie																		X	
4	BLI-PS-DUP3	Paint	Dec. 17, 2014	Baggie																		X	
5	BLI-AS12	Caulking	Dec. 16, 2014	Baggie																			X
6	BLI-AS18	Caulking	Dec. 16, 2014	Baggie																			X
7	BLI-AS28	Caulking	Dec. 16, 2014	Baggie																			X
8	BLI-AS29	Caulking	Dec. 16, 2014	Baggie																			X
9	BLI-AS35	Caulking	Dec. 17, 2014	Baggie																			X
10	BLI-AS37	Caulking	Dec. 17, 2014	Baggie																			X

Please analyze paint and substrate for applicable samples. Hold remaining samples for possible TCLP.

RELINQUISHED BY: (Signature/Print)	Date	Time	RECEIVED BY: (Signature/Print)	Date	Time
Lori Wiseman	19/12/2014	12:35a.m.	Sara Mason SARA MASON	2014 DEC 22	15:47

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MAXXAM Chain of Custody Record

COC#: Page 5 of 5

This column for lab use only :
Client Code
Maxxam Job# B402216
Cooler Id | Seal Present | Seal Intact | Temp 1 | Temp 2 | Temp 3 | Average Temp
Integrity YES (NO) | Integrity Checklist by: SM
Labelled by: | Location/Bin# 15

INVOICE INFORMATION:
Company Name: AMEC Environment & Infrastructure
Contact Name: Lori Wiseman
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Quote AMEC 2014 SO
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1	BLI-CRS1	Wood	Dec. 17, 2014	Baggie																			X	X	X	X
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										

RELINQUISHED BY: (Signature/Print) Date Time
Lori Wiseman 19/12/2014 1:00 p.m.

RECEIVED BY: (Signature/Print) Date Time
Sara Mason SARA MASON

2014 DEC 22 15:47

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emcscientific
INCORPORATED

Laboratory Analysis Report

To:

Lori Wiseman
AMEC Environment & Infrastructure
133 Crosbie Road
P.O. Box 13216
St. John's, Newfoundland
A1B 4A5

EMC LAB REPORT NUMBER: 51150
Job/Project Name: Baccalieu Island HazMat
Job/Project No: TF14076579 **No. of Samples:** 2
Sample Type: Bulk **Date Received:** Dec 22/14
Analysis Method(s): Direct Microscopic Examination
Date Analyzed: Dec 29/14 **Date Reported:** Dec 29/14
Analyst: Lalita Sarlashkar, Ph.D., *Microbiologist*
Approved By: Fajun Chen, Ph.D., *Principal Mycologist*

Client's Sample ID	Lab Sample No.	Date Sampled	Description/Location	Mould Identified, in Rank Order	Mould Growth
BLI-MS1	231349	Dec 17/14	Room 1, equipment building	*Cladosporium* *Acremonium* *Aspergillus/Penicillium* (a few spores)	Abundant
BLI-MS2	231350	Dec 17/14	Workshop, dwelling	*Cladosporium* *Penicillium* *Acremonium*	Moderate to abundant

Note:
1. Mould growth is subjectively assessed with description terms sparse, moderate and abundant.
2. The presence of spores (lacking other fungal structures associated) is assessed as following: a few spores (< 10 spores average per microscopic field at 400X), some spores (10 - 100 spores average per microscopic field at 400X), many spores (> 100 spores average per microscopic field at 400X).
3. The presence of a few spores generally represents settled spores on the surface of the sample rather than indicating mould growth.
4. The results are only related to the samples analyzed.

APPENDIX B7

ROOM-BY-ROOM INSPECTION AND INVENTORY SHEETS

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Living Room 1	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Carpet - Grey w blue, red, Grey and purple Specks	Poor		BLI-AS1 & AS2
Walls	Painted Drywall w wooden baseboards (Pink)	Poor (SVG)		BLI-PS1 BLI-PS2 BLI-AS3 & AS4
Ceiling	Painted Drywall w wooden trim (White)	Poor (SVG)		BLI-AS5
Paint (collect adequate amount for leachate analysis)	Walls Pink Ceiling White Floor N/A Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)				
Piping / Mechanical Equipment				
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: None Serial #:	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	None			
Thermostats (eg. Honeywell, etc.)	Manufacturer None Dial Colour Casing Shape Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) None observed.			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

BLI-AS1: Grey ~~over~~ w specks over grey w blue mastic over hardwood flooring. ← BLI-AS2

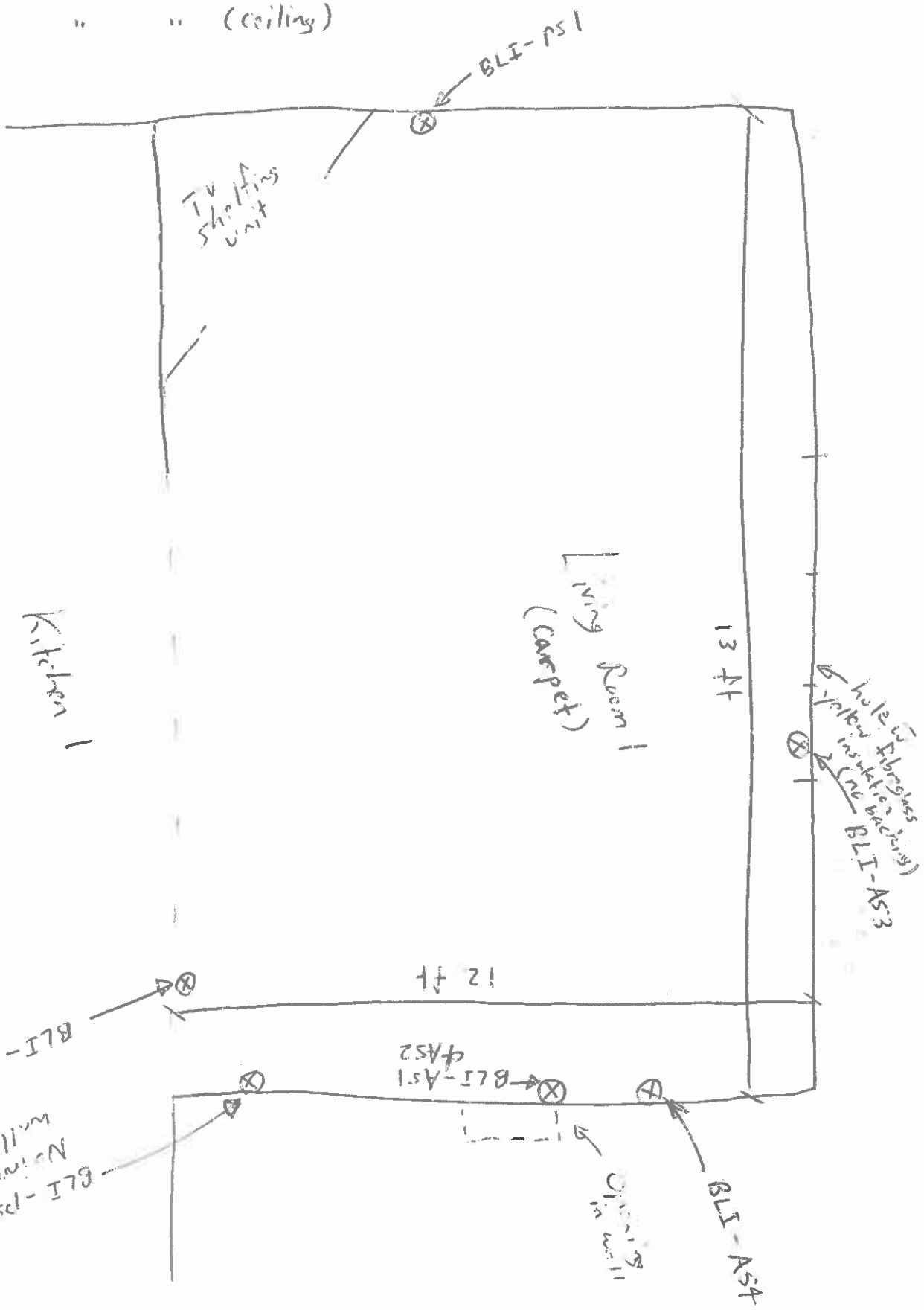
BLI-PS1: pink paint over ~~grey~~ on drywall.

BLI-PS2: Pink paint over grey on blue on blue on green on drywall (incl. substrate)

BLI-AS3: Drywall joint compound (exterior wall).

BLI-AS4: " " " (interior wall)

BLI-AS5: " " " (ceiling)



Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Kitchen 1	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	1'x1' vinyl floor-tiles wood-like pattern	Poor		BLI-AS6 BLI-AS10
Walls	Painted drywall and 4"x6" ceramic tile w wooden trim and baseboards	Poor (SVE)		BLI-AS7 BLI-PS4
Ceiling	Painted drywall	Poor (SVE)		BLI-PS3 BLI-AS9 BLI-AS11
Paint (collect adequate amount for leachate analysis)	Walls Pink w white tiles Ceiling white Floor N/A Other N/A			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)				
Piping / Mechanical Equipment	Copper piping			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Appears to have been removed. Serial #:	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent (heat shield)			
Thermostats (eg. Honeywell, etc.)	Manufacturer None Dial Colour Casing Shape Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	Solder (possible)			
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) None observed. BLI-AS8 (Countertop)			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

BLI-AS6: VFT w black mastic

BLI-AS7: White ceramic tile (backsplash) w beige mastic

BLI-AS8: Dark green Vinyl over pressed wood (Countertop)

BLI-PS3: White paint on ceiling

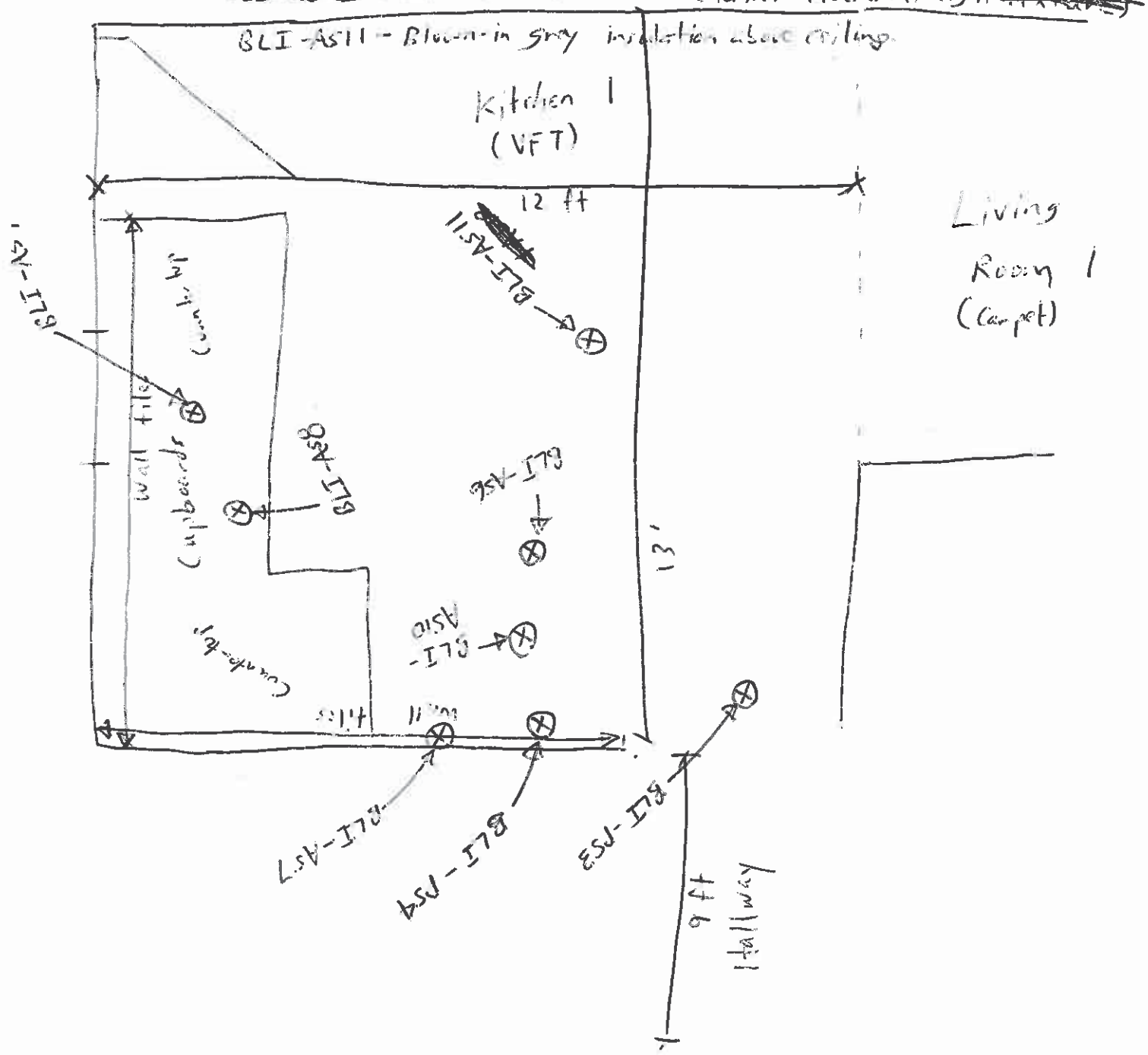
BLI-PS4: Pink paint over grey over blue over green over yellow on panelboard over drywall (including substrate)

over purple

BLI-AS9 - Incandescent light heat shield (foil w fibre-like backing)

BLI-AS10 - Vinyl sheet flooring (underneath VFTs), light brown w red, blue and green specks; Fabric backing

~~BLI-AS11 - Blown-in grey insulation above ceiling~~



Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Hallway 1	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Same as kitchen 1	Poor		
Walls	Same as kitchen 1	Poor (SVC)		
Ceiling	Same as kitchen 1	Poor (SVC)		
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)				
Piping / Mechanical Equipment	None			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: None Serial #:	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer None Dial Colour Casing Shape Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) Smoke detector			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

9 ft x 5 ft (thickest)

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Bathroom 1	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Same as Kitchen 1			BLI - AS13
Walls	Same as Kitchen 1			BLI - AS12
Ceiling	Same as Kitchen 1			BLI - PS5
Paint (collect adequate amount for leachate analysis)	Walls Pink over other colours Ceiling White over beige Floor Other N/A			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)				
Piping / Mechanical Equipment	Pvc + copper piping			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	None			
Thermostats (eg. Honeywell, etc.)	Manufacturer None Dial Colour Casing Shape Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)				
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums)			
Photos				

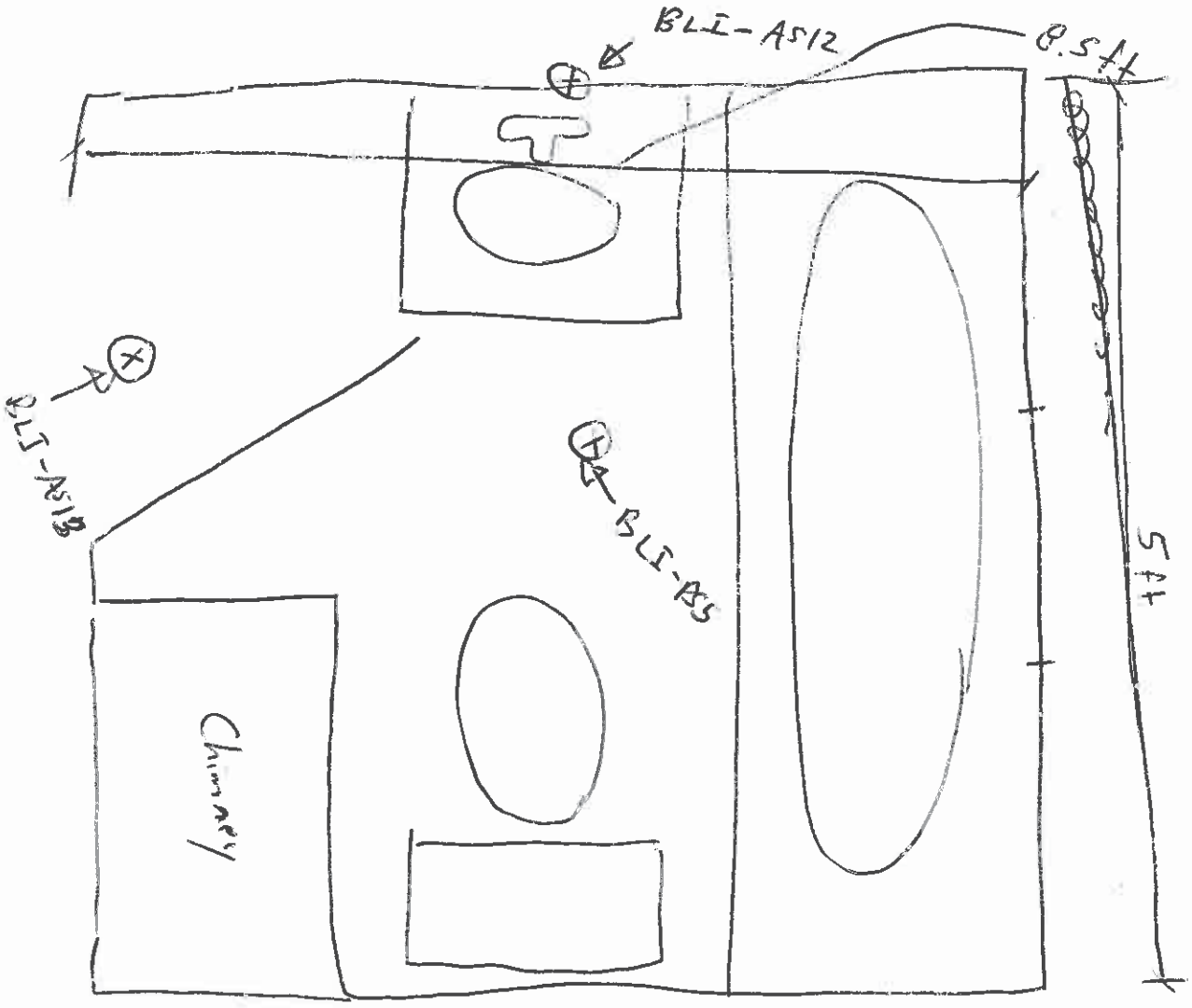
Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

BLI - A512 : off-white caulking on ceramic tile/drywall joint

BLI - A513 : Same two layers of VFT/ vinyl sheet flooring except with black paper backing.

BLI - P55 : white paint over beige ~~(illegible)~~ over yellow (ceiling).



height = 8 ft

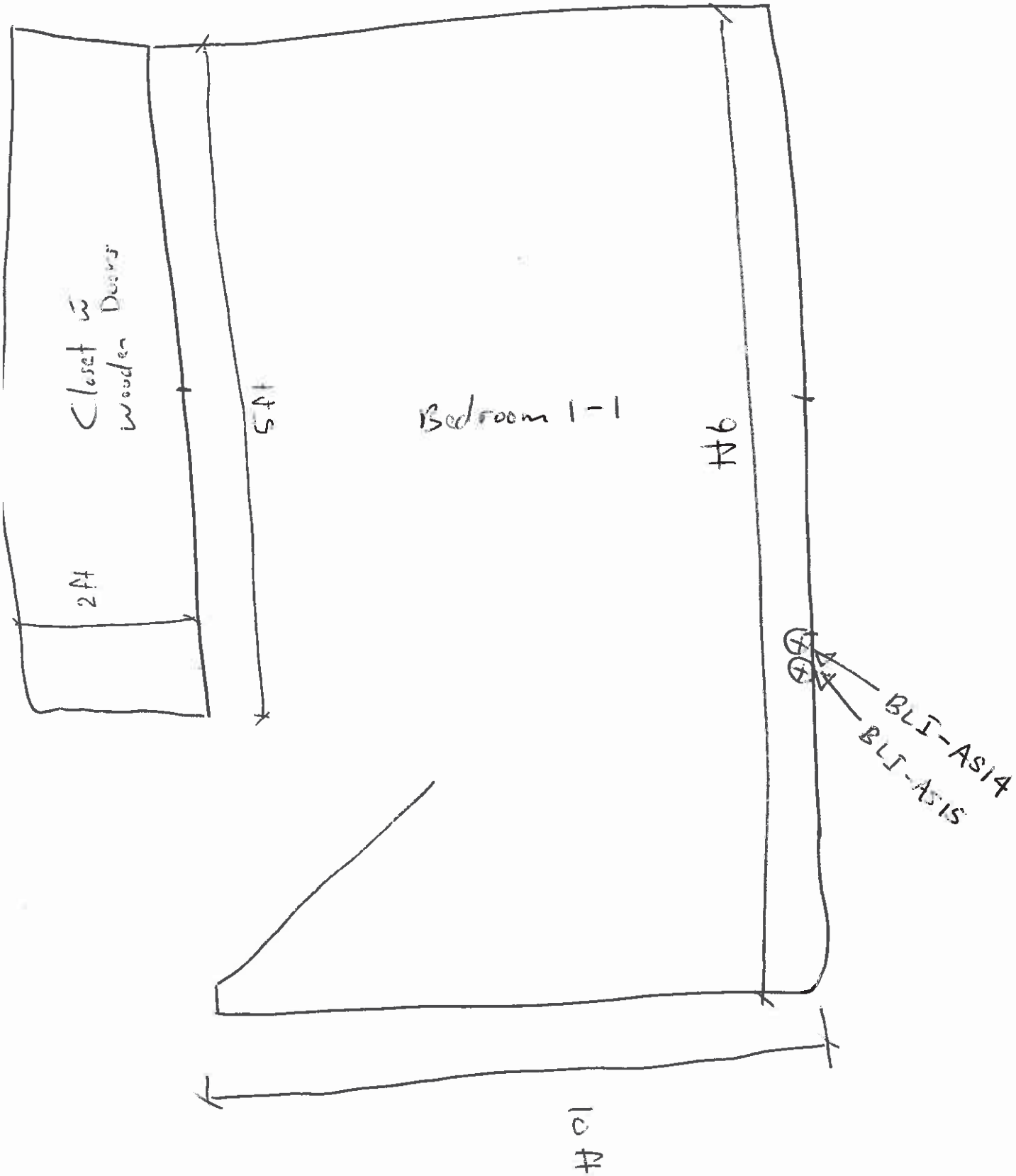
Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Bedroom 1-1	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Carpet - Commercial, grey	Poor		
Walls	Same as Living Room 1	Poor		BLI-AS14 BLI-AS15
Ceiling	" " " " "	Poor		
Paint (collect adequate amount for leachate analysis)	Walls Pink Ceiling White on Beige Floor Other N/A			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)				
Piping / Mechanical Equipment	None			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	None			
Thermostats (eg. Honeywell, etc.)	Manufacturer Colour None Dial Shape Casing Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums)			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

BLI-AS14: Yellow foam sealant around window (inside exterior wall).
BLI-AS15: Beige adhesive around former window framing.

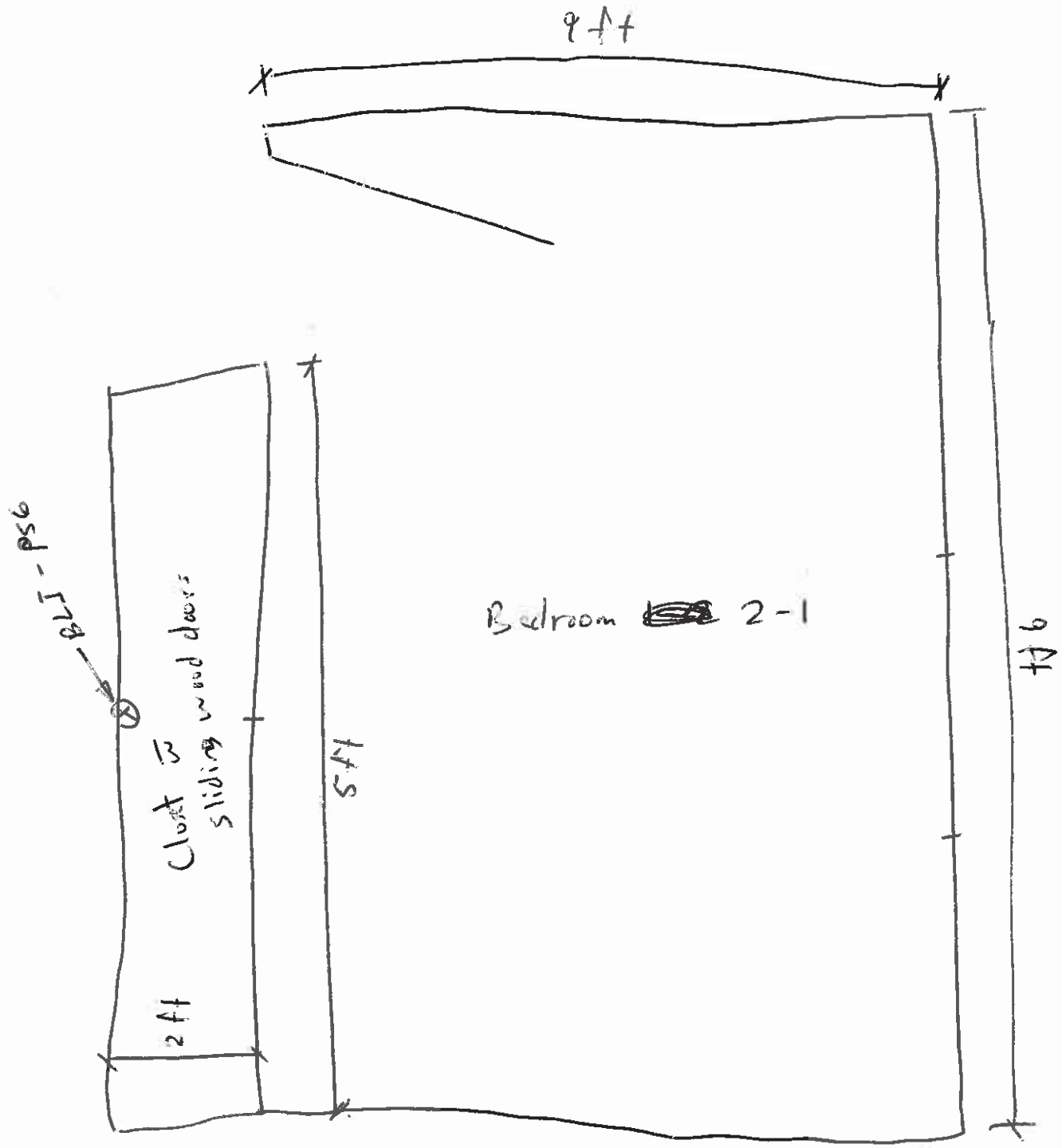


Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Bedroom 2-1	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Same as Bedroom 1-1			
Walls	" " " "			BLI-P56
Ceiling	" " " "			
Paint (collect adequate amount for leachate analysis)	Walls Pink Ceiling White Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)				
Piping / Mechanical Equipment	None			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #:	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer None Dial Colour Casing Shape Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums)			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:



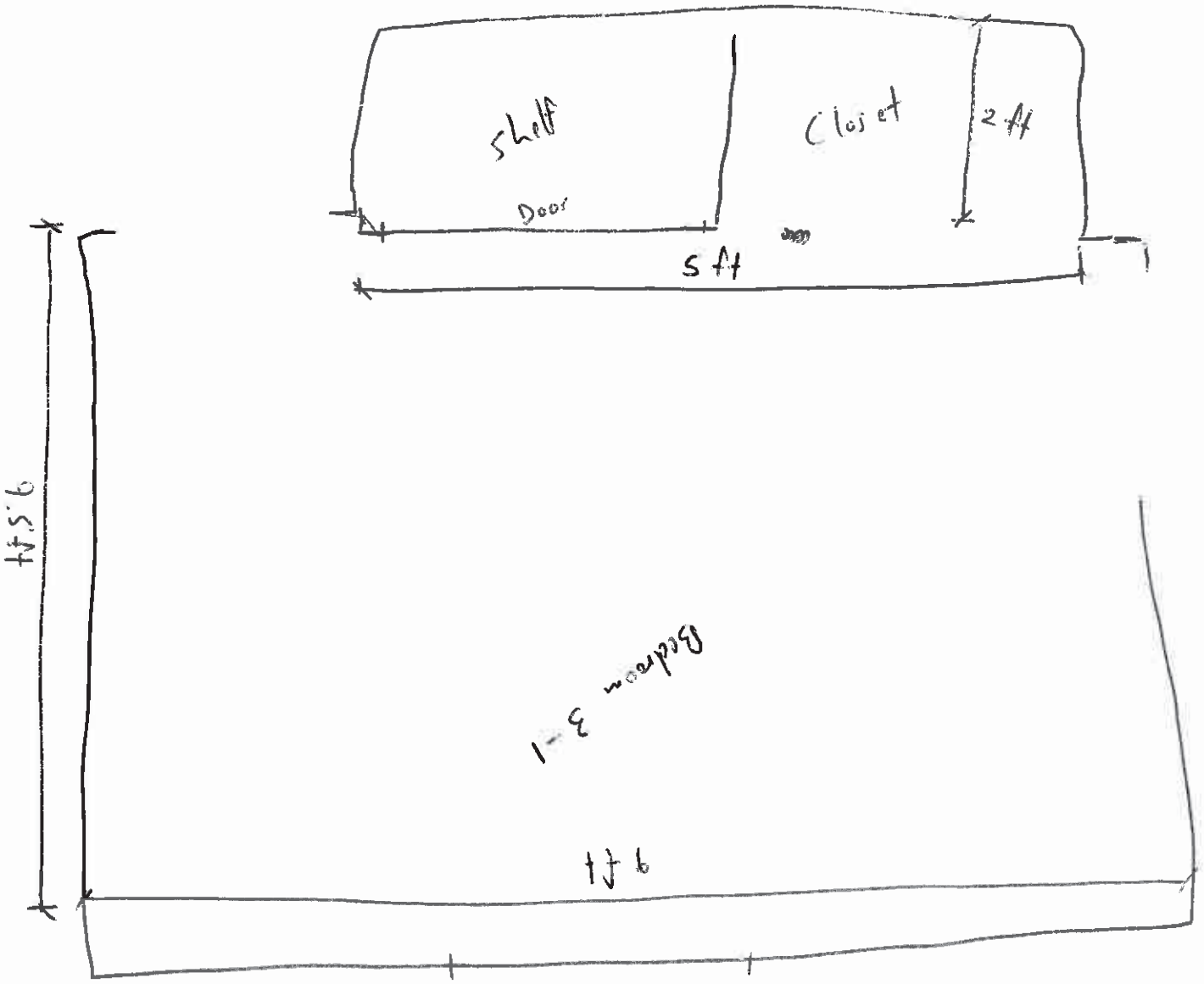
BLI - PS6: Blue paint over grey over green on drywall, including substrate

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	~~Bedroom 3-1~~ Bedroom 3-1	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Same as ~~Bedroom 1-1~~ Bedroom 1-1	Poor		
Walls	Same as ~~Bedroom 1-1~~ Bedroom 1-1	Poor		
Ceiling	Same as ~~Bedroom 1-1~~ Bedroom 1-1	Poor		
Paint (collect adequate amount for leachate analysis)	Walls Pink Ceiling White Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)	Yellow fibreglass no backing (ext. wall)			
Piping / Mechanical Equipment	None			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer Colour None Dial Shape Casing Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums)			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

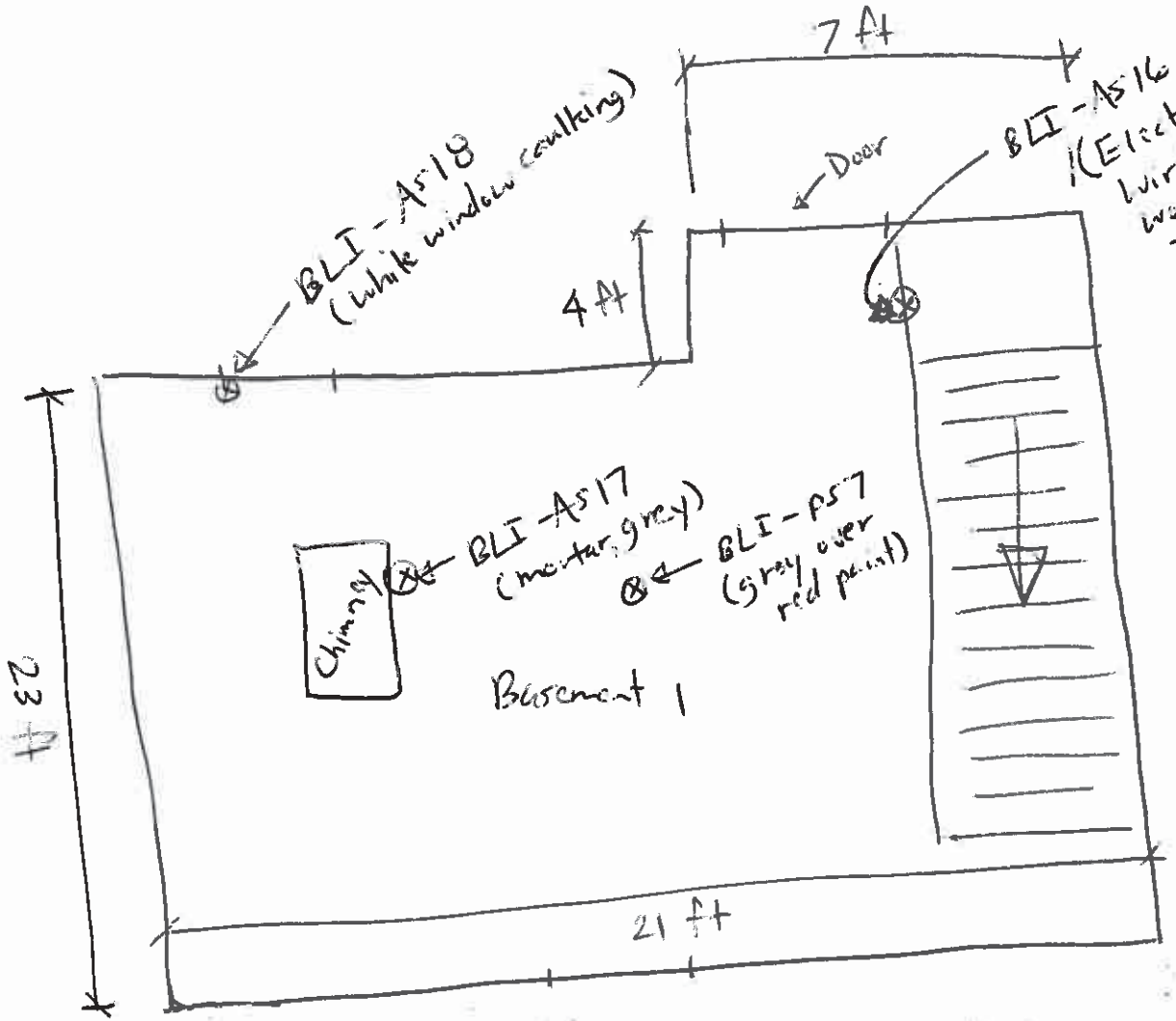

Shelf
Door
Closet
2 ft
5 ft
11 ft 6
Bedroom 3-1
9 ft

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Basement 1	Basement		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Painted concrete	Poor		BLI-PS7 ↓ BLI-PS-DUP1
Walls	Painted concrete	Poor		BLI-AS18
Ceiling	Unpainted beams/joists			
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Red under grey Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)	None			
Piping / Mechanical Equipment				
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #:	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer Dial Colour Casing Shape Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)				
Mould / Water Staining	Area impacted			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) BLI-AS16 (Electrical Wire Casing) BLI-AS17 (Brick mortar on chimney)			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:


7 ft
BLI - AS18
(white window caulking)
Door
BLI - AS16
(Electrical wiring black woven fibre coating in cardboard/paper wrap over plastic over copper)
4 ft
BLI - AS17
(mortar grey)
BLI - PS7
(grey over red paint)
Chimney
Basement 1
23 ft
21 ft

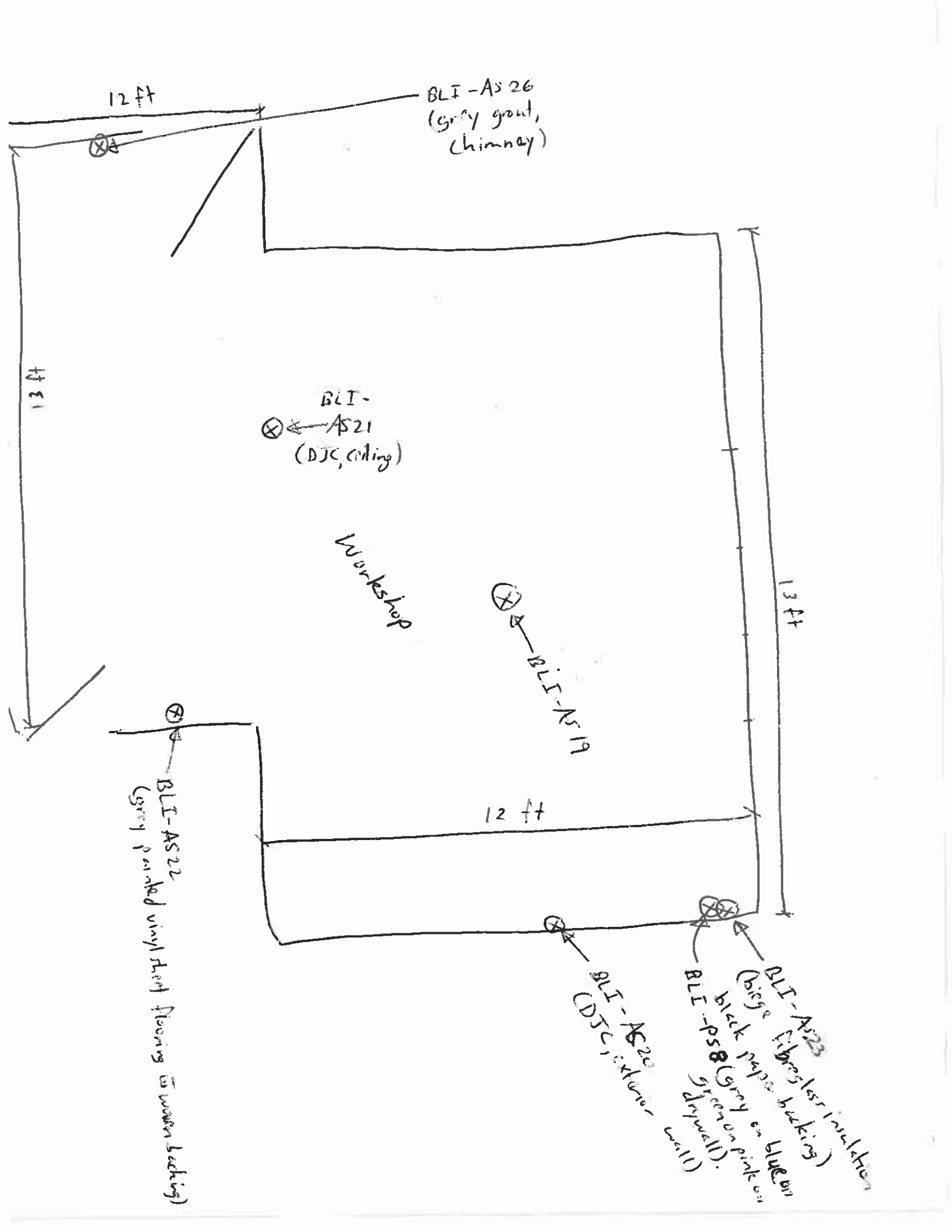
height = 7.5ft

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	~~[illegible]~~ Workshop	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Painted hardwood (grey) Painted Vinyl sheet Flooring (grey)	Fair		BLI-AS22
Walls	Painted plywood and drywall (grey)	Poor (SUG)		BLI-AS20 BLI-AS23 BLI-PS8 [BLI-MS2]
Ceiling	Painted drywall (white over beige)	Poor (SUG)		BLI-AS21
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)	Grey/yellow fibreglass c- paper backing.			BLI-AS19 (Ceiling)
Piping / Mechanical Equipment				
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer Colour Shape Wall/Floor Mounted None Dial Casing		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)				
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) BLI-AS26 (Chimney grout or mortar).			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:


12 ft
BLI-AS 26
(grey grout, chimney)
13 ft
BLI-AS21
(DJC, ceiling)
Workshop
BLI-AS19
13 ft
12 ft
BLI-AS22
(grey painted vinyl sheet flooring w/ wooden backing)
BLI-AS20
(DJC, exterior wall)
BLI-PS8 (grey on blue on pink on green on pink on drywall).
BLI-AS23 (fiberglass insulation (bisque backing) black paper backing)

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Hallway 2	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Grey carpet	Poor		
Walls	Painted drywall (pink over colours)	[redacted] Poor		
Ceiling	Painted drywall (white over beige)	Poor		
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)				
Piping / Mechanical Equipment	None			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer Colour None Shape Wall/Floor Mounted Dial Casing		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) Smoke detector			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

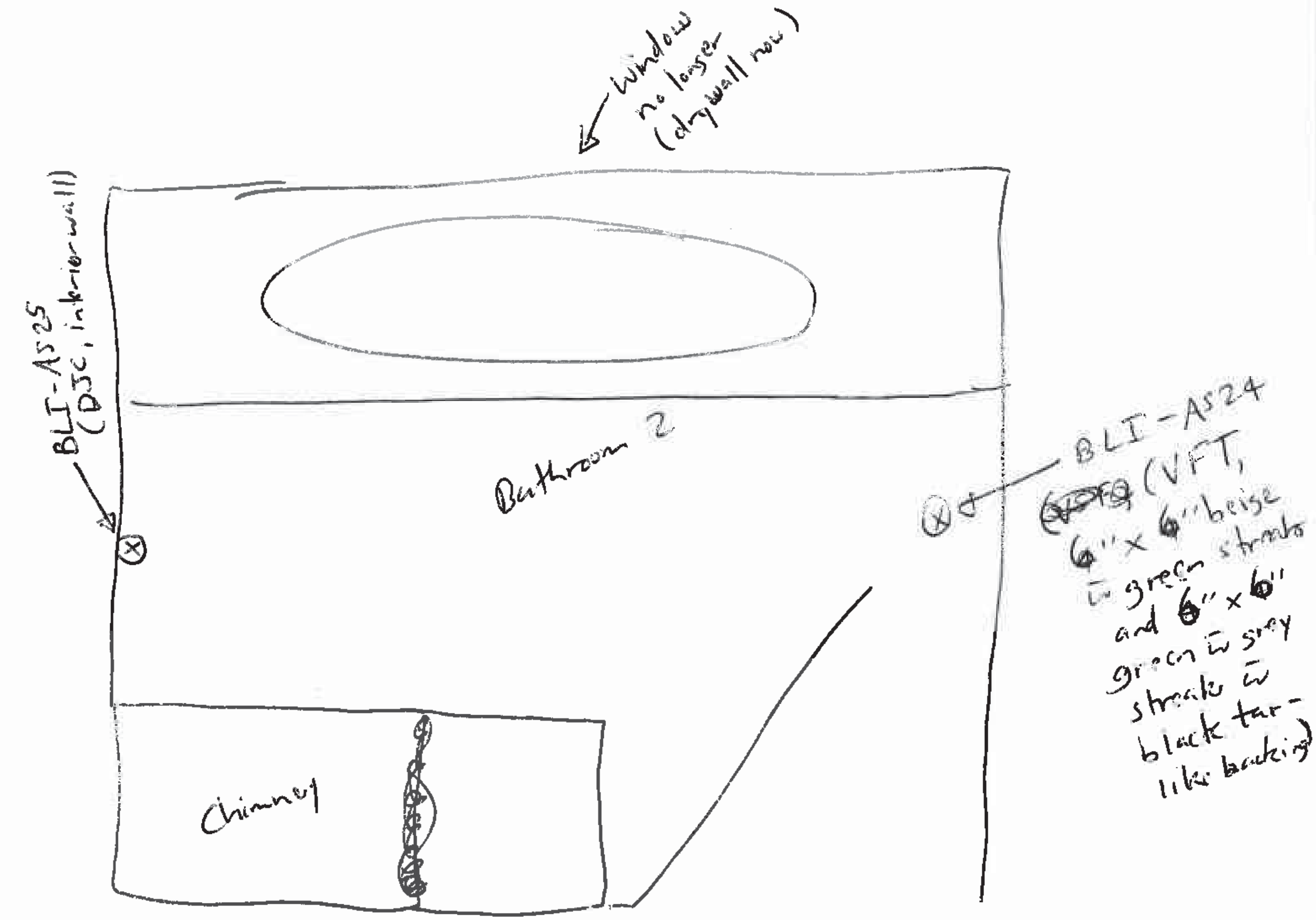
Notes/Comments:

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Bathroom 2	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Grey carpet (not adhered) over vinyl ~~sheet flooring~~ floor tile.	Fair		BLI-AS24
Walls	Painted drywall, unpainted plywood			BLI-AS25
Ceiling	Painted drywall			
Paint (collect adequate amount for leachate analysis)	Walls white/blue Ceiling white over beige Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)				
Piping / Mechanical Equipment				
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: None Serial #:	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer Dial Colour None Casing Shape Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)				
Mould / Water Staining	Area impacted Entire room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums)			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

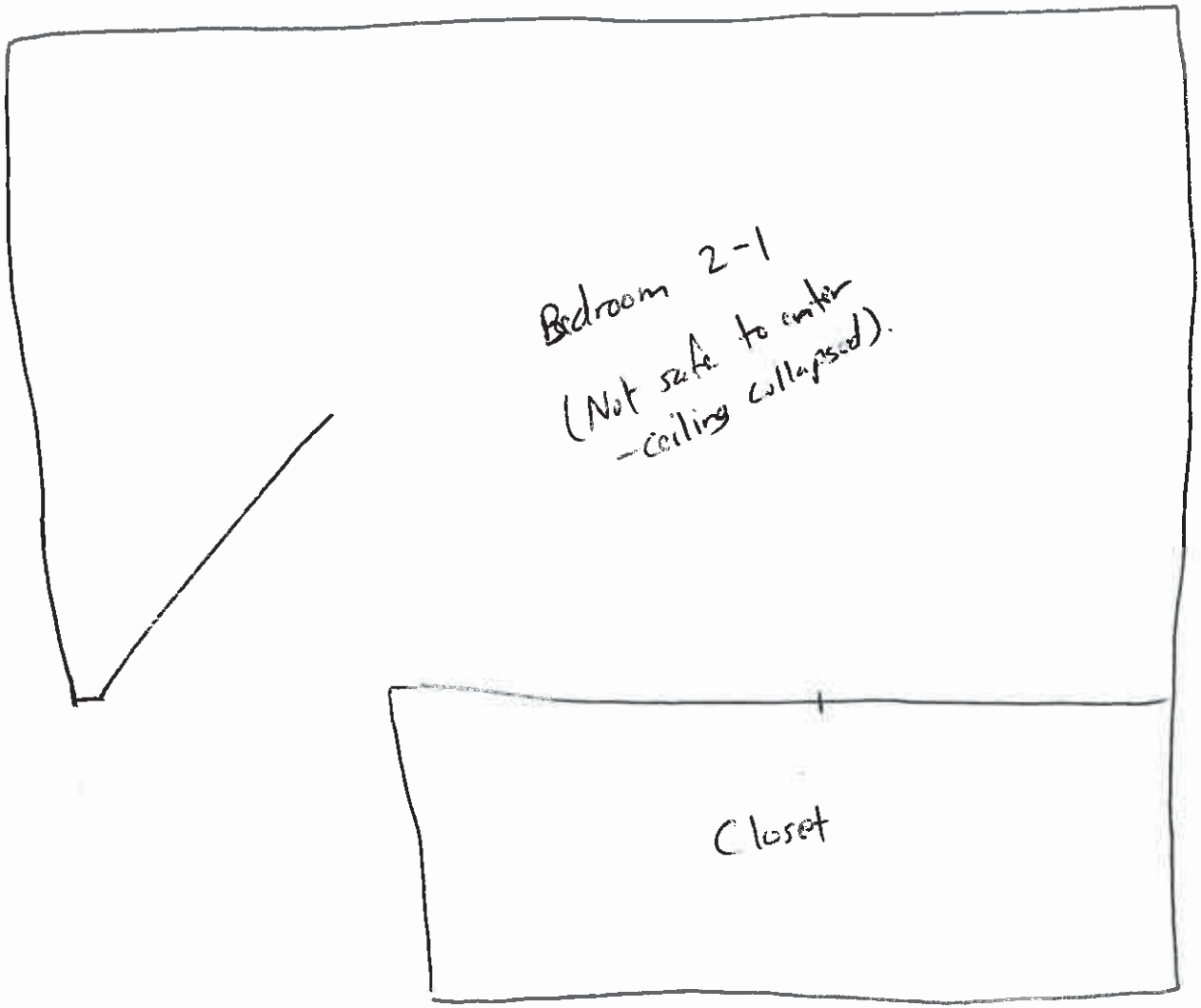

Window
no longer
(drywall now)
BLI-AS25
(DJC, interior wall)
Bathroom 2
BLI-AS24
(VFT,
6" x 6" beige
w/ green streaks
and 6" x 6"
green w/ grey
streaks w/
black tar-
like backing)
Chimney

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Bedroom 1-2	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Grey carpet	Poor		
Walls	Painted drywall	Extremely Poor		
Ceiling	Insulation has fallen through entire ceiling	" "		
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Other Did not enter too hazardous			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)				
Piping / Mechanical Equipment				
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer Dial Colour None Casing Shape Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)				
Mould / Water Staining	Area impacted Entire room (ceiling collapsed)			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums)			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

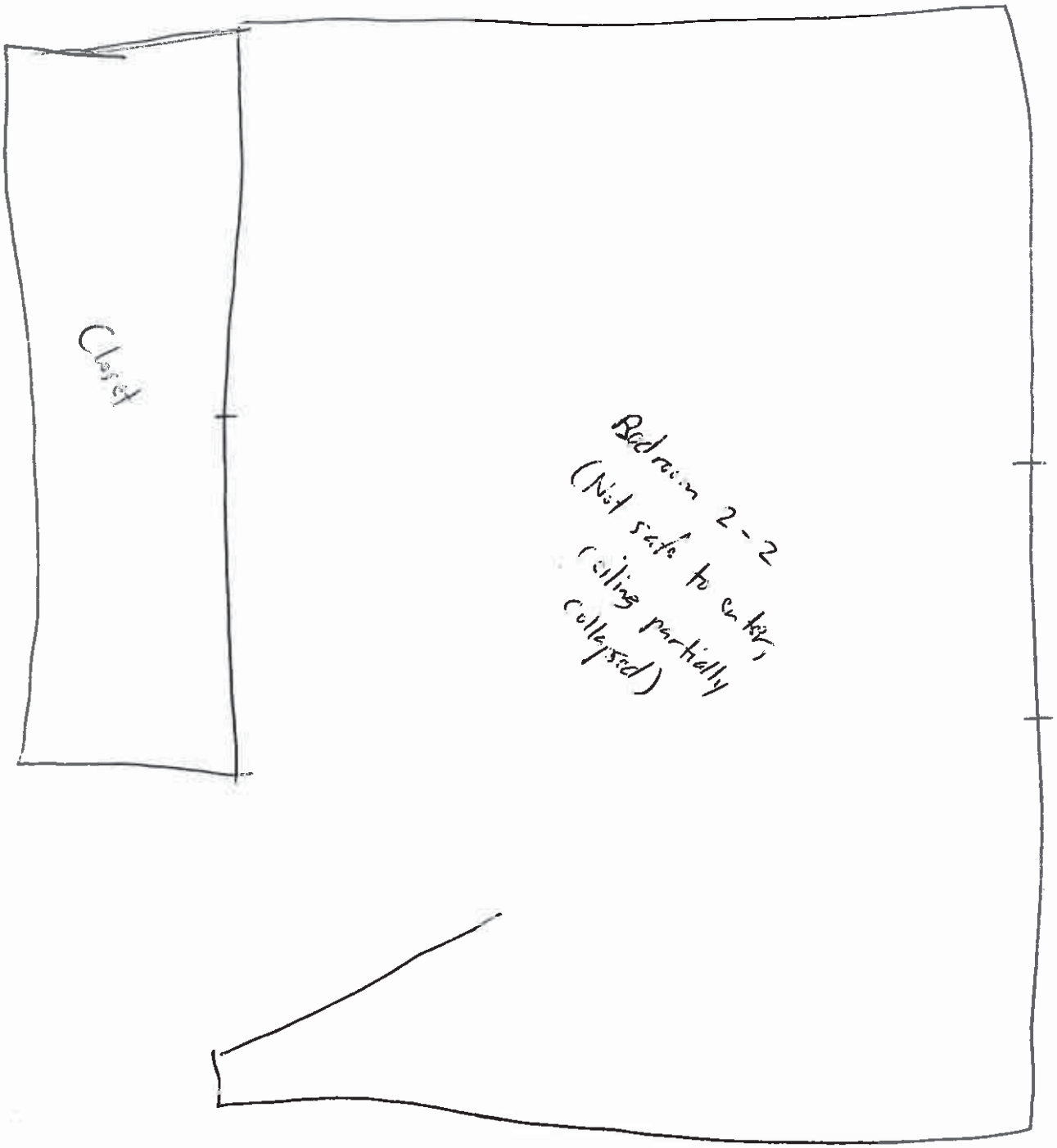

Bedroom 2-1
(Not safe to enter
-ceiling collapsed).
Closet

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Bedroom 2-2	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Grey carpet	Poor		
Walls	Painted drywall (pink over blue)			
Ceiling	Painted drywall (white over beige)			
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Ceiling has partially collapsed. Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)	Above ceiling (grey fibreglass w paper backing)			
Piping / Mechanical Equipment	None			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer Colour None Shape Wall/Floor Mounted Dial Casing		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Entire room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums)			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

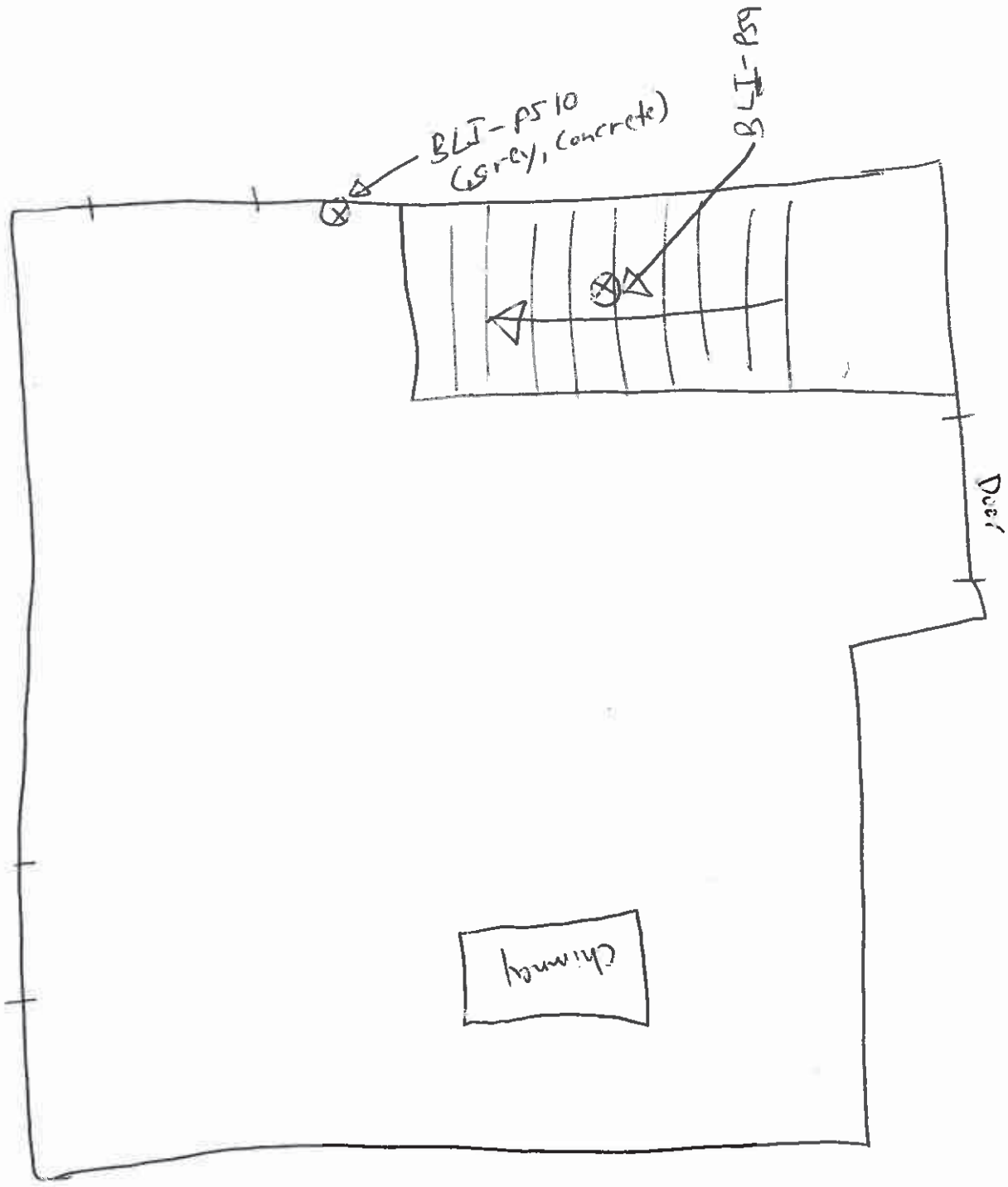

Closet
Bedroom 2 - 2
(Not safe to enter,
ceiling partially
collapsed)

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Basement 2	Basement		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Painted concrete (grey)			
Walls	Painted concrete (grey overred)			BLI-PS10
Ceiling	Unpainted wood beams/joists			
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)	None			[illegible]
Piping / Mechanical Equipment				
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer Colour None Dial Shape Casing Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)				
Mould / Water Staining	Area impacted			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) BLI-PS9 (red on green on peach on grey on wooden staircase).			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

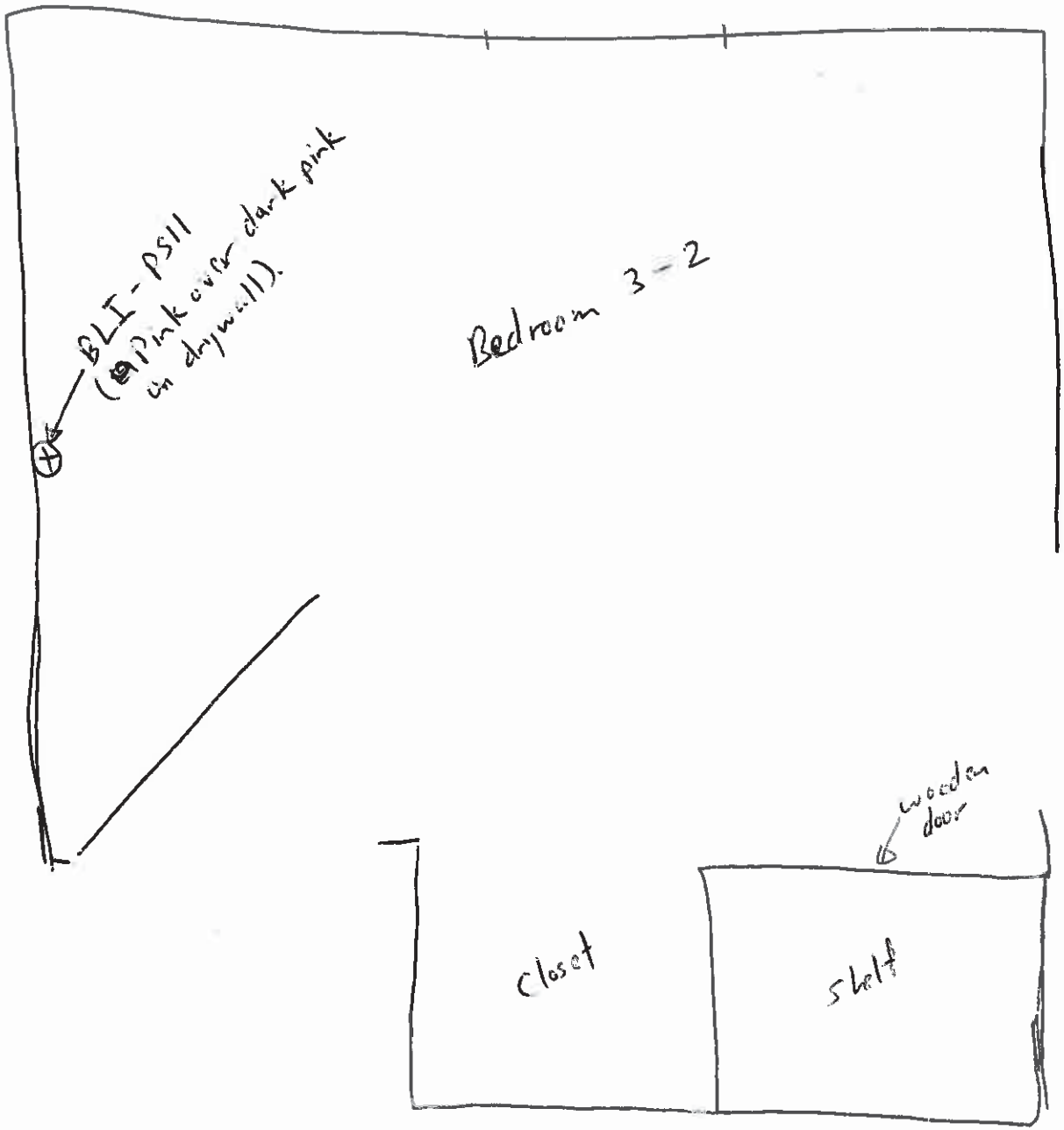

BLI-PS10
(Grey, Concrete)
BLI-PS9
Door
chimney

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Dwelling	Bedroom 3-2	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Hardwood	Poor		
Walls	Painted drywall (Pink over dark pink)	Poor		BLI - P511
Ceiling	Painted drywall (white over beige)	Poor		
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)				
Piping / Mechanical Equipment	None			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer Colour None Dial Shape Casing Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Entire room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums)			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:


BLE - PS11
(@ Pink over dark pink
in drywall).
Bedroom 3 - 2
wooden door
closet
shelf

WOODEN RAIL
BLI-A529
(white caulking on wood exterior)
Living Room 1
Kitchen 1
Porch 1
B1-2
Hallway 1
B2-1
B3-1
B2-2
BLI-PX12
(white on white on wooden clapboard exterior)
BLI-A527
(red shingle on ground)
B3-2
Hallway 2
B1-2
Bath 2
BLI-A528
(white caulking on wood exterior)
Workshop
Porch 2

SPA
B.M.

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Equipment Building	1	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Painted concrete (grey)			
Walls	Painted drywall (white)			BLI-PS18 (grey over light grey over big ~ da wood)
Ceiling	Painted drywall (white) Painted press board (grey)			BLI-PS23 (white paint on ceiling)
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)	Unknown			
Piping / Mechanical Equipment				
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	Incandescent			
Thermostats (eg. Honeywell, etc.)	Manufacturer Colour None Shape Wall/Floor Mounted Dial Casing		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)				
Mould / Water Staining	Area impacted Entire room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) Electrical heater w knob to control temperature			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Equipment Building	2	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Painted Concrete (grey over red)	Poor		
Walls	Painted Drywall (white) Painted Plywood (grey)	Poor		
Ceiling	Painted Drywall (white)	Poor		
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)	Fibreglass insulation above ceiling			
Piping / Mechanical Equipment	None			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: 1 light fixture Serial #: Too high to inspect.	Leaking / Other	Total #: 1 # Checked: 0	Suspect PCBs: Yes
Lighting (Incandescent, HID, etc.)	None			
Thermostats (eg. Honeywell, etc.)	Manufacturer Dial Colour Casing Shape None Wall/Floor Mounted		Total.#: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) None			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

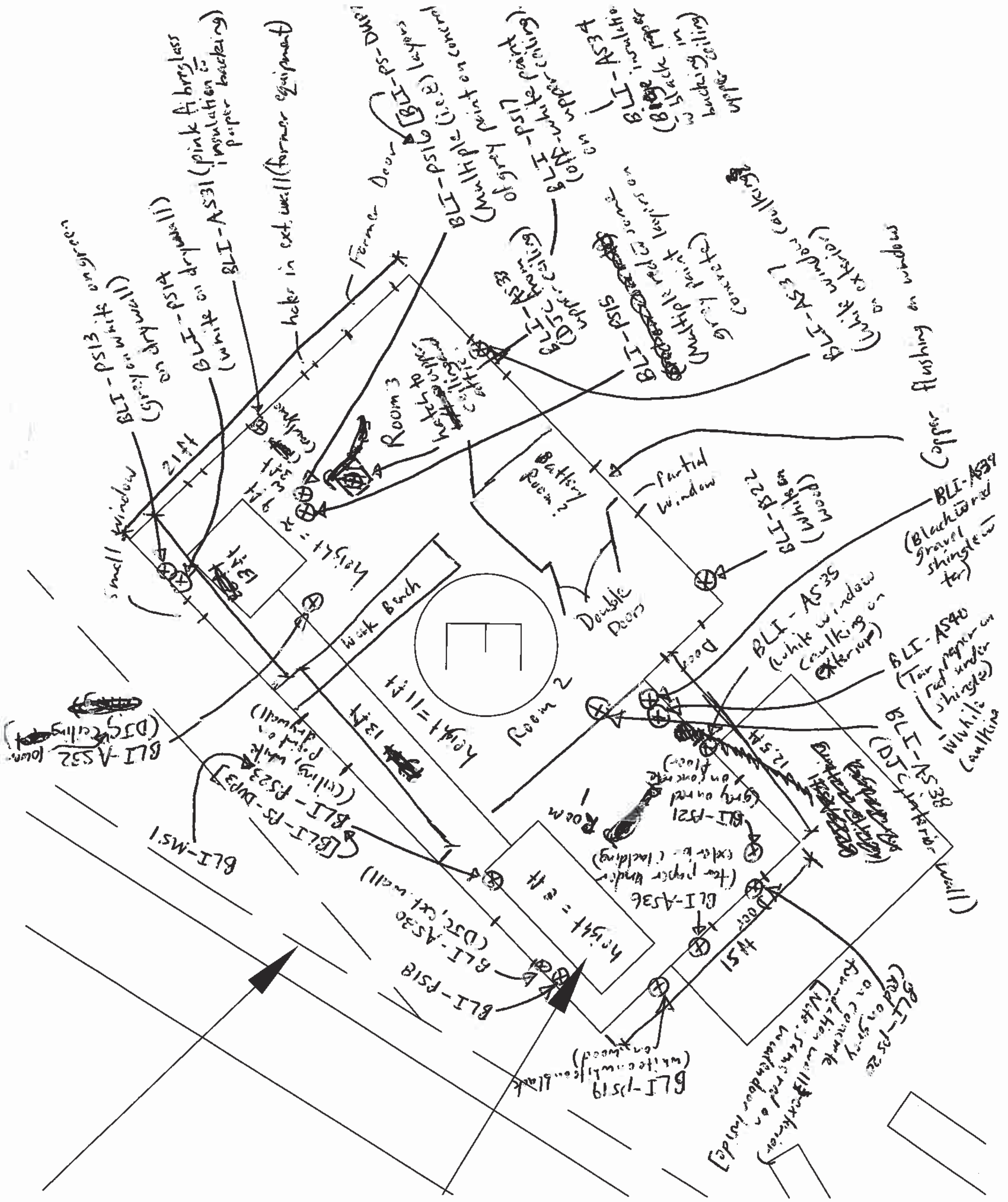
Notes/Comments:

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Equipment Building	3	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Painted Concrete (grey on red)	Poor		
Walls	Painted Drywall (grey and white) Painted Plywood (grey)	Poor (SVG)		BLI - PS13 BLI - PS14
Ceiling	Painted Drywall (white) Double drywall ceiling then attic above (unfinished)	Poor (SVG)		
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)	Pink fibreglass w black paper backing			
Piping / Mechanical Equipment	Metal piping (equipment?)			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None (removed)	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	None (removed)			
Thermostats (eg. Honeywell, etc.)	Manufacturer Colour Shape Wall/Floor Mounted Dial Casing None		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Entire Room			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) None			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:



BLI-PS13 (grey on white on drywall)
BLI-PS14 (white on drywall)
BLI-AS31 (pink fiberglass insulation w/ paper backing)
holes in ext. wall (former equipment)
Former Door
BLI-PS16 (multiple (i.e.) layers of grey paint on concrete)
BLI-PS17 (off-white paint on upper ceiling)
BLI-AS34
Copper flashing on windows
BLI-AS37 (white window caulking on exterior)
BLI-PS15
Room 3
Battery Room 2
Partial Window
Double Doors
Room 2
Work Bench
Small Window
21 ft
13 ft
12.5 ft
15 ft
Door
Room 1
BLI-PS22 (white on wood)
BLI-AS39 (Black gravel shingle w/ tar)
BLI-AS35 (white window caulking on exterior)
BLI-AS40 (Tar paper on roof under shingles)
BLI-AS38 (DJC interior wall)
BLI-AS32 (DJC ceiling)
BLI-MS1
BLI-PS23 (ceiling white paint on drywall)
BLI-AS30 (DJC ext. wall)
BLI-PS18
BLI-PS19
BLI-PS21
BLI-AS36 (tar paper under exterior cladding)

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
(Lower) Winch House 1	–	1		

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Unpainted plywood			
Walls	Unpainted plywood			
Ceiling	Unpainted plywood			
Paint (collect adequate amount for leachate analysis)	Walls Exterior (white/red trim) Ceiling Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)	Not insulated			
Piping / Mechanical Equipment	Winch (corroded)			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	None			
Thermostats (eg. Honeywell, etc.)	Manufacturer Dial Colour Casing Shape None Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted None			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums) None ; creosote ~~treated~~ treated timber but areas of deck are unsafe and could not sample pole or decking posts below deck.			
Photos				

Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

BLI - AS41 (Roofing ~~shingle~~; 3 ft roll of tar paper w tar)
BLI - PS24 (white on plywood exterior)
BLI - PS25 (red on white on wood exterior)

Building	Room #	Floor #	Room Description	Dimensions (L x W x H)
Winch House 2 (walkway from Helipad)				

	Description	Condition (good, fair, poor)	Quantity (SF, LF, total)	Visual / Actual Samples Collected
Floor	Painted Concrete (grey over red)	Poor		BLI-FS30: grey on red on Concrete
Walls	Unpainted boards			
Ceiling	Unpainted boards			
Paint (collect adequate amount for leachate analysis)	Walls Ceiling Floor Other			
Insulation (Piping/Mechanical/ Wall/Ceiling/Other)	None			
Piping / Mechanical Equipment	No winch			
Lighting (Fluorescent) (10% to be checked)	Ballast Manufacturer: Serial #: None	Leaking / Other	Total #: # Checked:	Suspect PCBs:
Lighting (Incandescent, HID, etc.)	None			
Thermostats (eg. Honeywell, etc.)	Manufacturer Colour None Dial Shape Casing Wall/Floor Mounted		Total #: # Checked:	Mercury Switch:
LCMs (saudering, pipes batteries, exit/ emerg lighting,)	None			
Mould / Water Staining	Area impacted Some mould impacted wood.			
Other	e.g. UFFI, CO, VOCs, ODSs (refrigerator units/beverage coolers, drinking fountains, fire extinguishers), furnace, ASTs, USTs, drums)			
Photos				

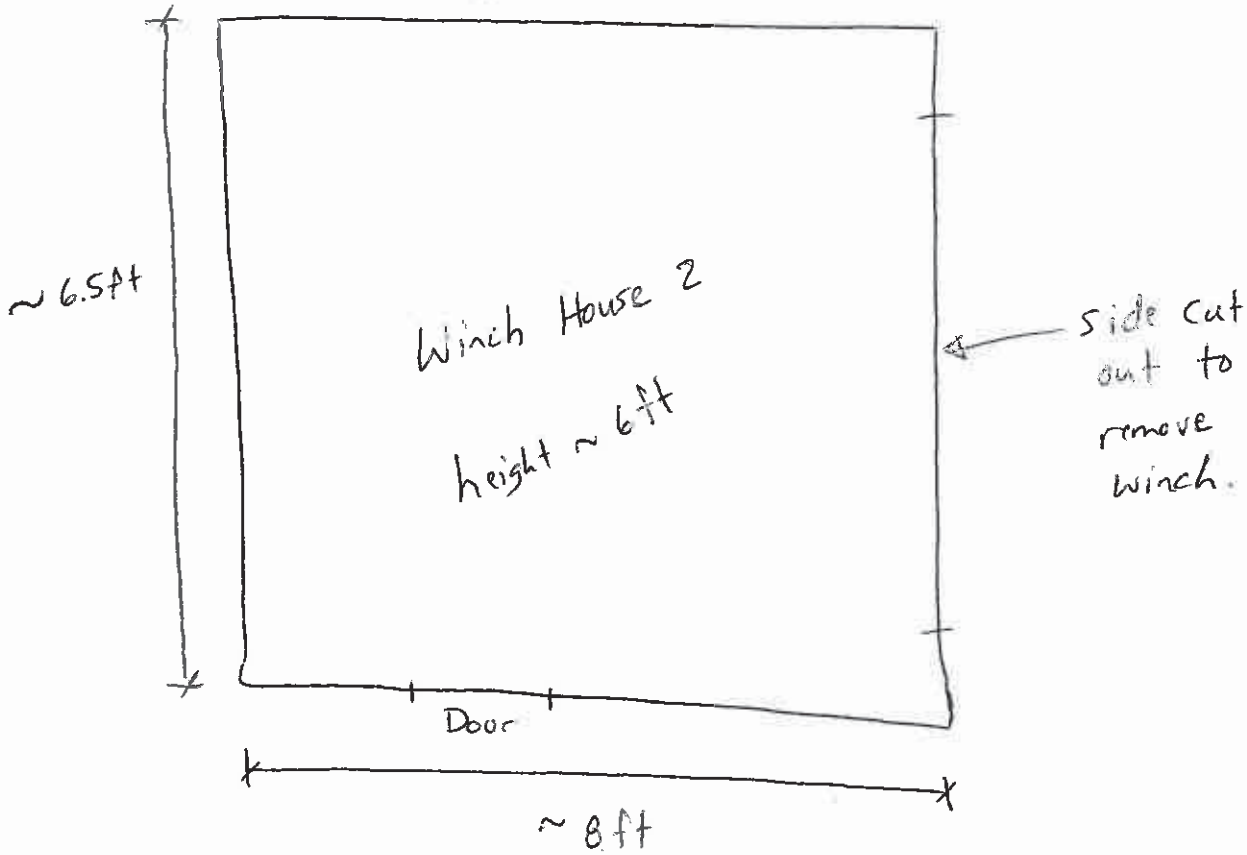
Legend: PS (paint sample); VPS (visual reference to PS); AS (asbestos sample); VAS (visual reference to AS); FS (fungal sample); LCM (lead-containing material); ACM (asbestos-containing material); DJC (drywall joint compound); VFT (vinyl floor tile – specify 1 x 1', 9 x 9"); ACT (acoustic ceiling tile – specify pattern e.g. speckled); LF (linear feet); SF (square feet).

Notes/Comments:

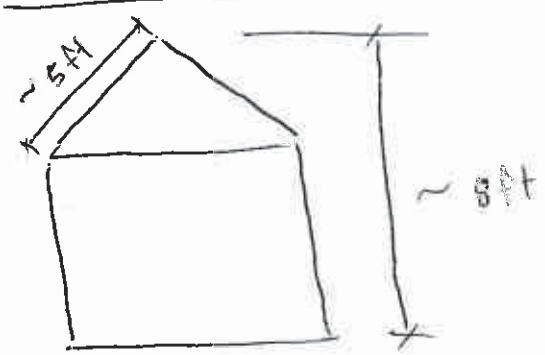
BLI-AS42: Red Shingle in tar

Ocean

Plan View



Side View



APPENDIX C7

REPORT LIMITATIONS

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 Contract;
   (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 Amec Foster Wheeler'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. 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, might be present on site and be revealed by different or other testing not provided for in our contract.

6. The findings within this report do not reflect potential ACMs in areas not accessed, such as remote space areas, roof areas, wall cavities and ceilings spaces. During future renovations or demolition activities and subsequent removal of interior wall and ceiling materials, the actual quantities of asbestos containing materials can be verified. Also at this time, analysis of suspect ACM materials may be required if the appearance differs from that of materials previously confirmed to contain asbestos in adjacent rooms.

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

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

9. This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or the part, or any reliance thereon or decisions made based on any information or conclusions in the report, is the sole responsibility of such third party. Amec Foster Wheeler accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.

10. This report is not to be given over to any third party for any purpose whatsoever without the written permission of Amec Foster Wheeler.