Public Works and Government Services Canada

Pacific Agri-Food Research Centre

Hazardous Building Materials Abatement

Requisition No: EZ899-141851

Project no. R.057604.001
October 2013

APPROVED BY:

Regional Manager, Env. Services — Date: 2013/11/22

Construction Safety Coordinator — Date: 2013/11/22

TENDER:

Project Manager — Date: 13/11/22

Real Property Services Branch, Professional and Technical Services, Pacific Region
Room 219 - 800 Burrard Street, Vancouver, B.C., V6Z 0B9

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"Hazardous Building Materials Assessments – Buildings of the Pacific Agri-Food Research Centre Agassiz and Abbotsford (Clearbrook), BC", prepared by Stantec Consulting Ltd., dated February, 2013.

"Pre-Demolition Hazardous Building Materials Assessment Pacific Agri-Food Research Centre, Agassiz, British Columbia; Addendum #1– Supplemental Sampling (Asbestos and Lead Leachate); Buildings 6, 6A, 40, 53, 53A, 53B and 67", prepared by Stantec Consulting Ltd., dated October 15, 2013.

Appendix B

Issued for Tender Drawings

Drawings – Site Plans

END OF SECTION

Part 1 Summary of Work

1.1 RELATED SECTIONS

.1 Section 01 56 00 - Temporary Barriers and Enclosures.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract consists of execution of hazardous building materials abatement within Buildings 6, 6A, 40, 53, 53A, 53B and 67 at the Pacific Agri-Food Research Centre in Agassiz, BC; and further identified as the Work.

1.3 OCCUPANCY

.1 The Main site will be occupied during the Work; Farm 2 site will remain unoccupied. Buildings 6, 6A, 40, 53, 53A, 53B and 67 will remain unoccupied during the Work.

.2 Co-operate with Departmental Representative in scheduling operations to minimize conflict and to facilitate Pacific Agri-Food Research Centre usage of premises, where applicable.

1.4 CONTRACTOR'S USE OF PREMISES

.1 Contractor will have access to site for the full six (6) weeks which has been allowed for completion.

.2 Contractor will be responsible for securing the site if the contractor fails to complete the project in the specified time.

.3 Access to areas inside the Facility is controlled by the Departmental Representative.

.4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.5 DOCUMENTS REQUIRED:

.1 Maintain at job site, one copy each document as follows, where applicable:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders.
- .5 Other Modifications to Contract.
- .6 Field Test Reports.
- .7 Copy of Approved Work Schedule.
- .8 Health and Safety Plan and Other Safety Related Documents.
- .9 Environmental Protection Plan, relevant environmental permits and other environment related documents
- .10 Other documents as specified.

Part 2 Work Restrictions

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Where security is reduced by work provide temporary means to maintain security.

.3 Access to Building 34 will be provided to the Contractor's personnel for use of sanitary facilities during work within Buildings 6, 6A, 53, 53A and 53B. Keep facility clean. For Work to be conducted in Buildings 40 and 67 the Contractor will have to supply their own sanitary facilities.

.4 Water will be available at all buildings with the exception of building 67 Available water is not to be considered potable/drinking water.

.1 Contractor to supply water for work within Building 67, if required..

.5 Accept liability for damage, safety of equipment and overloading of stairs

.6 Construct barriers in accordance with Temporary Barriers and Enclosures clause.

.7 Security Requirements: refer to Section 01 14 10 - Security requirements.

.8 Hours of work:

.1 The Work can be performed 7 days a week and there will be no restrictions on work hours.

.9 Access into Facility:

.1 No access will be permitted into unauthorized buildings unless approved by the Departmental Representative.

Part 3 Construction Work Schedule

.1 Commence work immediately upon official notification of acceptance of offer and complete the work within six (6) weeks from the date of such notification.

.2 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Substantial Certificate and Final Certificate as defined times of completion are of essence of this contract.

.3 Submittals:

.1 Refer to Section 01 33 00 Submittal Procedures.

.4 Project Scheduling Reporting:

.1 Update Project Schedule on bi-monthly basis reflecting activity changes and completions, as well as activities in progress.

.2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

.5 Project Meetings:

.1 Discuss Project Schedule at bi-monthly site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

.2 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price. After approval by Departmental Representative cost breakdown will be used as basis for progress payments.

Part 4 Health and Safety

.1 Specified in Section 01 35 33 - Health and Safety Requirements.

Part 5 Environmental Procedures

.1 Specified in Section 01 35 43 – Environmental Procedures

.2 Fires and burning of rubbish on site not permitted.

.3 Do not dispose of waste or volatile materials such as oil, paint thinner or mineral spirits into waterways, storm or sanitary systems.

.4 Under no circumstances dispose of rubbish or waste materials on property or Pacific Agri-Food Research Centre waste bins.

Part 6 Regulatory Requirements

6.1 REFERENCES AND CODES:

.1 Perform Work in accordance with National Building Code of Canada (NBCC2010) including all amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

Part 7 Quality Control

7.1 INSPECTION:

.1 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.

.2 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.3 Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

7.2 REJECTED WORK:

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

Part 8 Temporary Utilities

8.1 TEMPORARY VENTILATION:

.1 Ventilating:

.1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during abatement.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.4 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.2 Maintain strict supervision of operation of temporary ventilating equipment to:

.1 Conform with applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

8.2 TEMPORARY POWER AND LIGHT:

.1 Provide own electrical lines from source.

8.3 TEMPORARY COMMUNICATION FACILITIES:

.1 Conform to Section 01 14 10 Security Requirements.

8.4 FIRE PROTECTION:

.1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

Part 9 Construction Facilities

9.1 LIFTING EQUIPMENT

.1 Where required, provide, operate and maintain lifting equipment and manpower required for moving of heavy products.

9.2 SITE STORAGE/LOADING:

.1 Confine work and operations of employees to areas specified in Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

9.3 CONSTRUCTION PARKING:

.1 Parking will be available where needed at each building.

9.4 CONTRACTOR'S SITE OFFICE:

.1 Provide office as required to accommodate Contractor's operations.

.2 Provide a clearly marked and fully stocked first-aid case in a readily available location in accordance with WorkSafe BC requirements.

9.5 EQUIPMENT AND TOOLS STORAGE:

.1 Provide and maintain, in a clean and orderly condition, lockable secure lock box for storage of tools and materials.

9.6 SANITARY FACILITIES:

.1 Access to Building 34 will be provided to the Contractor's personnel for use of sanitary facilities during work within Buildings 6, 6A, 53, 53A and 53B. Keep facility clean.

.2 For the Work to be conducted in Buildings 40 and 67 the Contractor will have to supply their own sanitary facilities.

9.7 CONSTRUCTION SIGNS:

.1 If signage is requested or required, format, location and quantity of site signs and notices to be approved by Departmental Representative.

.2 Signs and notices for safety or instruction to be in English language, or commonly understood graphic symbols.

.3 Maintain signboards, signs and notices for duration of project. Remove and dispose of signs off site when directed by Departmental Representative.

.4 Remove signs from site at completion of project or as directed by Departmental Representative.

Part 10 Temporary Barriers and Enclosures

10.1 ENCLOSURE OF WORK AREA:

.1 Provide temporary dust barriers around work areas where dust or harmful vapours are being generated. Exhaust dust and vapours to exterior.

Part 11 Cleaning

11.1 PROJECT CLEANLINESS:

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris.

.2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative.

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

.4 Provide and use clearly marked separate bins for recycling.

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

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

.7 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.8 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

11.2 FINAL CLEANING:

.1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.3 Remove waste products from site.

Part 12 Closeout Procedures

12.1 INSPECTION AND DECLARATION:

.1 Contractor's Inspection: Conduct an inspection of Work with all subcontractors, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.2 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.

.3 Request Departmental Representative's Inspection.

12.2 INSPECTION:

.1 Departmental Representative, Consultant and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.

12.3 COMPLETION:

.1 Submit written certificate that the following have been performed:

.1 Work has been completed and inspected for compliance with Contract Documents.

.2 Defects have been corrected and deficiencies have been completed.

.3 Work is complete and ready for Final Inspection.

12.4 FINAL INSPECTION:

.1 When items noted above are completed, request final inspection of Work by Departmental Representative. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 56 00 - Temporary Barriers and Enclosures.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract consists of execution of hazardous building materials abatement within Buildings 6, 6A, 40, 53, 53A, 53B and 67 at the Pacific Agri-Food Research Centre in Agassiz, BC as indicated in the reports in Appendix A; and further identified as the Work.

1.3 CONTRACT METHOD

.1 Conduct Work under stipulated price (lump sum) contract.

.2 Relations and responsibilities between Contractor and subcontractors are as defined in Conditions of Contract. Assigned Subcontractors must, in addition:

.1 Furnish to Contractor, bonds covering faithful performance of subcontracted work and payment of obligations thereunder when Contractor is required to furnish such bonds to Owner.

.2 Purchase and maintain liability insurance to protect from claims for not less than limits of liability which Contractor is required to provide to Owner.

1.4 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Consultant.

.2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Consultant in writing, any defects which may interfere with proper execution of Work.

1.5 EXISTING SERVICES

.1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Carry out work at times as directed by governing authorities with minimum disturbance to vehicular traffic.

.3 Provide alternative routes for vehicular traffic, as required.

.4 Temporary services to maintain critical building and tenant systems are not required.

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

.6 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.7 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.8 Although power may be provided by the site the Contractor must plan to provide power to be self-sufficient, if necessary.

.9 Contractor must plan to supply potable water to be self-sufficient, if necessary.

.10 Site will allow for access to the existing sewer but the Contractor must plan for pumping out the system when necessary.

.11 Access to Building 34 will be provided to the Contractor's personnel for use of sanitary facilities during work within Buildings 6, 6A, 53, 53A and 53B. Keep facility clean. For Work to be conducted in Buildings 40 and 67 the Contractor will have to supply their own sanitary facilities.

1.6 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 List of Outstanding Shop Drawings.
- .6 Change Orders.
- .7 Other Modifications to Contract.
- .8 Field Test Reports.
- .9 Copy of Approved Work Schedule.
- .10 Health and Safety Plan and Other Safety Related Documents.
- .11 Environmental Protection Plan, relevant environmental permits and other environment related documents.
- .12 Other documents as specified.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 56 00 - Temporary Barriers and Enclosures.

1.2 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.3 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.

.2 Maintain existing services to building as require to facilitate the Work, and provide for personnel and vehicle access.

.3 Where security is reduced by work provide temporary means to maintain security.

.4 Building 34 will be used as a sanitary facility for use by Contractor's personnel. Keep facility clean. For the Work to be conducted in Buildings 40 and 67 the Contractor will have to supply their own sanitary facility. Keep facilities clean.

.5 Closures: protect work temporarily until permanent enclosures are completed.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to site operations, public and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.5 EXISTING SERVICES

.1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Provide for pedestrian and vehicular traffic.

.3 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.6 SPECIAL REQUIREMENTS

.1 Carry out noise generating Work in accordance with applicable Municipal bylaws.

.2 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.3 Keep within limits of work and avenues of ingress and egress.

.4 Deliver materials between 07:00 to 16:00 unless otherwise approved by Departmental Representative.

1.7 SECURITY

.1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.

.2 Security clearances:

.1 Not required

1.8 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Smoking is not permitted.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 Purpose

.1 To ensure that the abatement project and the facility operations may proceed without undue disruption or hindrance and that the security of the facility is maintained at all times.

Part 2 Definitions

.1 "Unauthorized smoking and related Items" means all smoking items including, but not limited to, cigarettes, cigars, tobacco, chewing tobacco, cigarette making machines, matches and lighters.

.2 "Commercial Vehicle" means any motor vehicle used for the shipment of material, equipment and tools required for the abatement project.

.3 "Departmental Representative" means Departmental Representative, or Representative of the facility as applicable.

.4 "Abatement employees" means persons working for the general contractor, the sub-contractors, equipment operators, material suppliers, testing and inspection companies and regulatory agencies.

.5 "Departmental Representative" means the Public Works and Government Services Canada representative defined in General Conditions.

.6 "Abatement limits" means the area, as indicated in the contract documents, that the contractor will be allowed to work". Limits to be confirmed at abatement start-up meeting.

Part 3 Preliminary Proceedings

.1 At abatement start-up meeting:

.2 Discuss the nature and extent of all activities involved in the Project.

.3 Establish mutually acceptable security procedures in accordance with this instruction and the facility's particular requirements.

.4 The contractors' responsibilities:

.5 Ensure that all abatement employees are aware of the security requirements.

.6 Ensure that a copy of the security requirements is always prominently on display at the job site.

.7 Co-operate with facility personnel in ensuring that security requirements are observed by all abatement employees.

Part 4 Contractor Employees

.1 Any person employed on the abatement site will be subject to immediate removal from property if they:

.1 appear to be under the influence of alcohol, drugs or narcotics.

.2 behave in an unusual or disorderly manner.

Part 5 Parking

.1 Parking will be available where needed at each building.

Part 6 Work Hours

.1 In accordance with applicable municipal bylaws and regulations.

Part 7 Tools and Equipment

.1 Store all tools and equipment in approved secure locations.

.2 Lock all tool boxes when not in use. Keys to remain in the possession of the employees of the contractor.

Part 8 Contraband

.1 Weapons, ammunition, explosives, alcoholic beverages, drugs and narcotics are prohibited on the work site.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Not applicable

1.2 ADMINISTRATIVE

.1 Project meetings will be scheduled and administered throughout the progress of the work at the call of Departmental Representative.

.2 Meeting minutes will be recorded by the Contractor and distributed by Departmental Representative, if required.

.3 Representative of Contractor, Subcontractor and/or suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.3 PRECONSTRUCTION MEETING

.1 Departmental Representative will schedule a pre-commencement meeting.

.2 Departmental Representative, Consultant and Contractor will be in attendance.

.3 Agenda to include:

- .1 Appointment of official representative of participants in the Work.
- .2 Schedule of Work: in accordance with schedule stipulated in Contract Documents.
- .3 Schedule of submission. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .4 Delivery schedule of specified equipment.
- .5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
- .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
- .7 Owner provided products.
- .8 Monthly progress claims, administrative procedures, photographs, hold backs.
- .9 Insurances, transcript of policies.

1.4 PROGRESS MEETINGS

.1 Progress meetings will be held. Departmental Representative will schedule the meetings and arrange for a meeting location.

.2 Contractor involved in Work, Departmental Representative and Consultant (if required) are to be in attendance.

.3 Notify parties minimum 5 days prior to meetings.

.4 Departmental Representative will chair the meeting, and distribute meeting minutes. Contractor will record the meeting minutes and provide within 5 business days.

.5 Agenda to include the following:

.1 Review, approval of minutes of previous meeting.
.2 Review of Work progress since previous meeting.
.3 Field observations, problems, conflicts.
.4 Problems which impede construction schedule.
.5 Corrective measures and procedures to regain projected schedule.
.6 Revision to construction schedule.
.7 Progress schedule, during succeeding work period.
.8 Review submittal schedules: expedite as required.
.9 Maintenance of quality standards.
.10 Review proposed changes for effect on construction schedule and on completion date.
.11 Other business.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Not applicable.

1.2 REFERENCES

.1 "Hazardous Building Materials Assessments – Buildings of the Pacific Agri-Food Research Centre Agassiz and Abbotsford (Clearbrook), BC", prepared by Stantec Consulting Ltd., dated February, 2013.

.2 " Pre-Demolition Hazardous Building Materials Assessment Pacific Agri-Food Research Centre, Agassiz, British Columbia; Addendum #1–Supplemental Sampling (Asbestos and Lead Leachate); Buildings 6, 6A, 40, 53, 53A, 53B and 67", prepared by Stantec Consulting Ltd., dated October 15, 2013.

1.3 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

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

.7 Verify field measurements and affected adjacent Work.

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

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

.10 Keep one reviewed copy of each submission on site.

1.4 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board (WorkSafeBC) status or clearance letter.

.2 Submit transcription of insurance immediately after award of Contract.

Products

1.5 NOT USED

.1 Not Used.

Part 2 Execution

2.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 References

.1 Government of Canada:

.1 Canada Labour Code - Part II.

.2 Canada Occupational Health and Safety Regulations.

.2 American National Standards Institute (ANSI):

.1 ANSI A10.3-2006, – Safety Requirements for Powder-Actuated Fastening Systems

.2 ANSI for Construction and Demolition Operations

.3 Canadian Standards Association (CSA):

.1 CSA Z797-2009 Code of Practice for Access Scaffold.

.4 HRSDC Fire Protection Engineering Section:

.1 FCC No. 301-1982, Standard for Construction Operations.

.5 National Building Code of Canada (NBCC 2005):

.1 Part 8, Safety Measures at Construction and Demolition Sites

.6 Province of British Columbia Building Code (2006):

.1 Part 8, Safety Measures at Construction and Demolition Sites.

.7 Province of British Columbia:

.1 Workers Compensation Act Part 3 - Occupational Health & Safety.

.2 Occupational Health & Safety Regulations.

Part 2 Related Sections

.1 Section 01 01 50 – General Instructions

.2 Section 01 33 00 – Submittal Procedures

.3 Section 01 51 00 – Temporary Utilities

.4 Section 01 56 00 – Temporary Barriers and Enclosures

Part 3 Workers' Compensation Board Coverage

.1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.

.2 Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

Part 4 Compliance with Regulations

.1 PWGSC may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.

.2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

Part 5 Submittals

.1 Make submittals in accordance with Section 01 01 50 General Instructions and 01 33 00 Submittal Procedures.

.2 Submit the following:

.1 Site Specific Health and Safety Plan.

.2 Copies of reports or directions issued by federal and provincial health and safety inspectors.

.3 Copies of incident and accident reports.

.4 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.

.5 Emergency Procedures.

.3 The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 5 days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative for review.

.4 Medical surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of work, and submit additional certifications for any new site personnel to Departmental Representative.

.5 Submission of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:

.1 Be construed to imply approval by the Departmental Representative.

.2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.

.3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

Part 6 Responsibility

.1 Assume responsibility as the Prime Contractor for work under this contract and appoint a qualified coordinator for the purpose of ensuring the coordination of health and safety activities for the location in accordance with sections 118 and 119 of Part 3 of the Workers Compensation Act.

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

.3 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

Part 7 Health and Safety Coordinator

.1 The Health and Safety Coordinator (Registered Occupational Hygienist, Certified Industrial Specified Hygienist, Canadian Registered Safety Professional or other WorkSafe BC Recognized Qualified Person) must:

.1 Be responsible for completing all health and safety training, and ensuring that personnel that do not successfully complete the required training are not permitted to enter the site to perform work.

.2 Be responsible for implementing, daily enforcing, and monitoring the site-specific Health and Safety Plan.

.3 Be on site during execution of work.

Part 8 General Conditions

.1 Provide safety barricades and lights around work site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.

.2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.

.1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.

.2 Secure site after working hours in accordance with Section 01 14 10 – Security Requirements.

Part 9 Project/Site Conditions

.1 Work at site will involve:

.1 Working on farm property associated with the Pacific Agri-Food Research Centre.

Part 10 Regulatory Requirements

.1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.

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

Part 11 Filing of Notice

.1 Submit a Notice of Project, form 52E49, to WorkSafeBC in accordance with OH&S Regulation 20.2, at least 24 hours before start of work.

.2 Submit copy to Departmental Representative.

Part 12 Health and Safety Plan

.1 Conduct a site-specific hazard assessment based on review of Contract documents, required work, and project site. Identify any known and potential health risks and safety hazards.

.2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:

.1 Primary requirements:

.1 Contractor's safety policy.

.2 Identification of applicable compliance obligations.

.3 Definition of responsibilities for project safety/organization chart for project.

.4 General safety rules for project.

.5 Job-specific safe work, procedures.

.6 Inspection policy and procedures.

.7 Incident reporting and investigation policy and procedures.

.8 Occupational Health and Safety Committee/Representative procedures.

.9 Occupational Health and Safety meetings.

.10 Occupational Health and Safety communications and recordkeeping procedures.

.2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.

.3 List hazardous materials to be brought on site as required by work.

.4 Indicate engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.

.5 Identify personal protective equipment (PPE) to be used by workers.

.6 Identify personnel and alternates responsible for site safety and health.

.7 Identify personnel training requirements and training plan, including site orientation for new workers.

.3 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.

.4 Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.

.5 Departmental Representative's review: the review of Health and Safety Plan by Public Works and Government Services Canada (PWGSC). PWGSC's review shall not relieve

the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract documents.

Part 13 Emergency Procedures

.1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names/telephone numbers) of:

- .1 Designated personnel from own company.
- .2 Regulatory agencies applicable to work and as per legislated regulations.
- .3 Local emergency resources.
- .4 Departmental Representative.

.2 Include the following provisions in the emergency procedures:

- .1 Notify workers of the nature and location of the emergency.
- .2 Evacuate all workers safely.
- .3 Check and confirm the safe evacuation of all workers.
- .4 Notify the fire department or other emergency responders.
- .5 Notify adjacent workplaces which may be affected if the risk extends beyond the workplace.
- .6 Notify Departmental Representative.

.3 Provide written rescue/evacuation procedures as required for, but not limited to:

- .1 Work at high angles.
- .2 Work in confined spaces or where there is a risk of entrapment.
- .3 Work with hazardous substances.
- .4 Underground work.

Part 14 Hazardous Products

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labeling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.

.2 Where use of hazardous and toxic products cannot be avoided:

- .1 Advise Departmental Representative beforehand of the product(s) intended for use.
- .2 Submit applicable MSDS and WHMIS documents in accordance with clause 5.2.4.

Part 15 Electrical Safety Requirements

.1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.

.1 Before undertaking any work, coordinate required energizing and de-energizing of new and existing circuits with Departmental Representative.

.2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.

Part 16 Electrical Lockout

.1 Where required, develop, implement and enforce use of established procedures to provide electrical lockout and to ensure the health and safety of workers for every event where work must be done on any electrical circuit or facility.

.2 Where required, prepare the lockout procedures in writing, listing step-by-step processes to be followed by workers, including how to prepare and issue the request/authorization form. Have procedures available for review upon request by the Departmental Representative.

.3 Keep the documents and lockout tags at the site and list in a log book for the full duration of the Contract. Upon request, make such data available for viewing by Departmental Representative or by any authorized safety representative.

Part 17 Overloading

.1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

Part 18 Powder-Actuated Devices

.1 Use powder-actuated devices in accordance with ANSI A10.3 only after receipt of written permission from the Departmental Representative.

Part 19 Fire Safety and Hot Work

.1 Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.

.2 Hot work includes cutting/melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which produces sparks.

Part 20 Fire Safety Requirements

.1 Store oily/paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

Part 21 Fire Protection and Alarm System

.1 Do not use fire hydrants for purposes other than firefighting.

.2 Be responsible/liable for costs incurred from the fire department and the Departmental Representative, resulting from false alarms.

Part 22 Unforeseen Hazards

.1 Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and advise the Departmental Representative verbally and in writing.

Part 23 Posted Documents

.1 Post legible versions of the following documents on site:

- .1 Health and Safety Plan.
- .2 Sequence of work.
- .3 Emergency procedures.
- .4 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
- .5 Notice of Project.
- .6 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.
- .7 Workplace Hazardous Materials Information System (WHMIS) documents.
- .8 Material Safety Data Sheets (MSDS).
- .9 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.

.2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of this Contract includes construction activities adjacent to occupied areas.

.3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as approved by the Departmental Representative.

Part 24 Meetings

.1 Attend health and safety pre-construction meeting and all subsequent bi-monthly meetings called by the Departmental Representative.

Part 25 Correction of Non-Compliance

.1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.

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

.3 The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time. The Contractor will be responsible for any costs arising from such a "stop work order".

END OF SECTION

Part 1 General

1.1 FIRE DEPARTMENT BRIEFING

.1 Departmental Representative will co-ordinate arrangements for contractor for briefing on Fire Safety, general site specific "Do's and Don'ts" in accordance with applicable municipal standards, before work is commenced.

1.2 REPORTING FIRES

.1 Know location of nearest fire alarm box and telephone, including emergency phone number (911).

.2 Report immediately fire incidents to the local Fire Department.

.3 Person calling in the fire alarm box will remain at entrance to direct Fire Department to scene of fire.

.4 When reporting fire by telephone, give location of fire, address or number of building and be prepared to verify location.

1.3 INTERIOR AND EXTERIOR FIRE PROTECTION AND ALARM SYSTEMS

.1 Fire hydrants, standpipes and hose systems will not be used for other than fire-fighting purposes unless authorized by Departmental Representative.

1.4 FIRE EXTINGUISHERS

.1 Supply fire extinguishers necessary to protect work in progress and contractor's physical plant on site.

1.5 BLOCKAGE OF ROADWAYS

.1 Advise Departmental Representative of work that would impede fire apparatus response. This includes erecting of barricades and digging of trenches.

1.6 SMOKING PRECAUTIONS

.1 Observe smoking regulations.

1.7 RUBBISH AND WASTE MATERIALS

.1 Keep rubbish and waste materials at minimum quantities.

.2 Burning of rubbish is prohibited.

.3 Removal:

.1 Remove rubbish from work site at end of work day or shift or as directed.

.4 Storage:

.1 Store waste in approved receptacles to ensure maximum cleanliness and safety.

.2 Deposit greasy or oily rags and materials subject to spontaneous combustion in approved receptacles and remove specified.

1.8 FLAMMABLE AND COMBUSTIBLE LIQUIDS

.1 Handling, storage and use of flammable and combustible liquids governed by current National Fire Code of Canada.

.2 Keep flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use in quantities not exceeding 45 litres provided they are stored in approved safety cans bearing Underwriters' Laboratory of Canada or Factory Mutual seal of approval. Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires permission of Departmental Representative.

.3 Transfer of flammable and combustible liquids is prohibited within buildings or jetties.

.4 Transfer of flammable and combustible liquids will not be carried out in vicinity of open flames or any type of heat-producing devices.

.5 Do not use flammable liquids having flash point below 38 degrees C such as naphtha or gasoline as solvents or cleaning agents.

.6 Store flammable and combustible waste liquids, for disposal, in approved containers located in safe ventilated area. Keep quantities minimum and Agassiz Fire Department is to be notified when disposal is required.

1.9 HAZARDOUS SUBSTANCES

.1 If the Work involves the use of toxic or hazardous materials, chemicals and/or explosives, or otherwise creating hazard to life, safety or health, Work shall be conducted in accordance with National Fire Code of Canada.

.2 When Work is carried out in dangerous or hazardous areas involving use of heat, provide fire watchers equipped with sufficient fire extinguishers. Determination of dangerous or hazardous areas along with level of protection necessary for Fire Watch is at discretion of Departmental Representative. Contractors are responsible for providing fire watch service for work on scale established and in conjunction with Departmental Representative (or alternate) at pre-work conference.

.3 Provide ventilation where flammable liquids, such as lacquers or urethanes are used, eliminate sources of ignition.

1.10 QUESTIONS AND/OR CLARIFICATION

.1 Direct questions or clarification on Fire Safety in addition to above requirements to Departmental Representative.

1.11 FIRE INSPECTION

.1 Co-ordinate site inspections through Departmental Representative.

.2 Allow Departmental Representative unrestricted access to work site.

.3 Co-operate with Departmental Representative during routine fire safety inspection of work site.

.4 Immediately remedy unsafe fire situations observed by Departmental Representative (or alternate).

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 11 – Cleaning.

1.2 REFERENCES

.1 Definitions:

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically..

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

.2 Reference Standards:

.1 Canadian Environmental Protection Act (CEPA)

.1 CCME PN 1326-[2008], Environmental Code of Practice for Aboveground and Underground Storage Tank Systems for Petroleum Products and Allied Petroleum Products.

.2 U.S. Environmental Protection Agency (EPA)/Office of Water

.1 EPA 832/R-92-005-[92], Storm Water Management for Construction Activities, Chapter 3.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Departmental Representative.

.3 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.

.4 Address topics at level of detail commensurate with environmental issue and required abatement task[s].

.5 Include in Environmental Protection Plan:

.1 Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.

.2 Name[s] and qualifications of person[s] responsible for manifesting hazardous waste to be removed from site.

.3 Name[s] and qualifications of person[s] responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.

.6 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

.7 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.8 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.9 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.

.10 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.11 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

1.4 FIRES

.1 Fires and burning of rubbish on site not permitted.

1.5 DRAINAGE

.1 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.

.2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.6 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 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.

.1 Provide temporary enclosures where required.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.7 NOTIFICATION

.1 Departmental Representative or Consultant will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.

.2 Contractor: after receipt of such notice, inform Departmental Representative or Consultant of proposed corrective action and take such action for approval by Departmental Representative.

.1 Do not take action until after receipt of written approval by Departmental Representative or Consultant.

.3 Departmental Representative or Consultant will issue stop order of work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: dispose of waste in accordance with Section 02 81 01 – Hazardous Materials.

.3 Rubbish and waste materials are not to be buried on site

.4 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 02 82 00.01 Asbestos Abatement - Minimum Precautions

.2 Section 02 82 00.02 Asbestos Abatement - Intermediate Precautions

.3 Section 02 82 00.03 Asbestos Abatement - Maximum Precautions

1.2 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

.3 Comply with all approvals and permits that apply to the Work.

.4 Contractor shall ensure compliance on its part and on the part of all its Subcontractors with the British Columbia Occupational Health and Safety Regulation thereunder.

.5 All other British Columbia Laws and Regulations shall apply as appropriate and the Contractor shall comply with the requirements thereof as though they had been specifically named in these specifications.

.6 Codes, Standards and Regulations are specified in other sections of the specifications and the Work shall be done in accordance with those Codes, Standards and Regulations where applicable.

1.3 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: Removal of asbestos-containing material (ACM) is one of the prime purposes of this Contract. Notify Consultant if additional, previously un-identified suspected ACM is identified during the Work.

.2 Lead: Removal of lead and materials coated with lead-containing paints is one of the prime purposes of this Contract. Notify Consultant if additional, previously un-identified suspected lead-containing materials are identified during the Work.

.3 Polychlorinated Biphenyl (PCB): Removal of PCBs is one of the prime purposes of this Contract. Notify Consultant if additional, previously un-identified suspected PCBs are identified during the Work.

.4 Ozone-depleting Substances (ODS): Removal of ODSs is one of the prime purposes of this Contract. Notify Consultant if additional, previously un-identified suspected ODSs are identified during the Work.

1.4 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions and municipal by-laws.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

1.2 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.3 INSTALLATION AND REMOVAL

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

.2 Remove from site all such work after use.

1.4 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.5 WATER SUPPLY

.1 Contractor will provide continuous supply of potable water for own use.

.2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.

1.6 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating, as required during construction period, including attendance, maintenance and fuel.

.2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

- .1 Facilitate progress of Work.
- .2 Protect Work and products against dampness and cold.
- .3 Prevent moisture condensation on surfaces.
- .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .5 Provide adequate ventilation to meet health regulations for safe working environment.

.4 Ventilating:

- .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during work.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.4 Ventilate storage spaces containing hazardous or volatile materials.

.5 Ventilate temporary sanitary facilities.

.6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

1.7 TEMPORARY POWER AND LIGHT

.1 Refer to General Instructions 01 01 50 Section 8.2

.2 Arrange for connection with appropriate utility company, if necessary. Pay costs for installation, maintenance and removal.

.3 Provide and maintain temporary lighting throughout project, where required and in accordance with applicable Health and Safety standards.

1.8 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax, data hook up, lines necessary for own use, if required.

1.9 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 Products

2.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 02 82 00.01 Asbestos Abatement - Minimum Precautions

.2 Section 02 82 00.02 Asbestos Abatement - Intermediate Precautions

.3 Section 02 82 00.03 Asbestos Abatement - Maximum Precautions

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 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs as necessary

.2 Provide as required by governing authorities.

1.4 WEATHER ENCLOSURES

.1 Not applicable

1.5 DUST TIGHT SCREENS

.1 Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers and public, as required.

.2 Maintain and relocate protection until such work is complete.

1.6 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.7 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.8 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 02 81 01 – Hazardous Materials.

1.2 REFERENCES

.1 Not applicable.

1.3 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Departmental Representative or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.

.3 Clear snow and ice from access to building, if necessary.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

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

.6 Provide and use marked separate bins for recycling.

.7 Dispose of waste materials and debris off site.

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

.9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.4 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.3 Prior to final review remove surplus products, tools, construction machinery and equipment.

.4 Remove all waste products and debris.

.5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.8 Clean and sweep areaways and sunken wells.

.9 Sweep and wash clean paved areas.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 02 81 01 – Hazardous Materials

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 74 11 – Cleaning

.2 Section 02 81 01- Hazardous Materials

1.2 REFERENCES

.1 Not applicable.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Departmental Representative or Consultant in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

.2 Request Departmental Representative/Consultant's inspection.

.2 Departmental Representative/Consultant's Inspection:

.1 Departmental Representative/Consultant and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:

.1 Work: completed and inspected for compliance with Contract Documents.

.2 Defects: corrected and deficiencies completed.

.3 Equipment and systems: tested and fully operational.

.4 Underground / Aboveground storage tank inspection documentation, registration, forms, decommissioning and removal in accordance with CEPA SOR/2008-197, if applicable.

.5 Work: complete and ready for final inspection.

.4 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Departmental Representative, Consultant, and Contractor.

.2 When Work incomplete according to Departmental Representative, Consultant, complete outstanding items and request re-inspection.

.5 Final Payment:

.1 When Departmental Representative and Consultant consider final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

1.4 FINAL CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

.2 Waste Management: dispose of waste materials in accordance with Section 02 81 01 – Hazardous Materials

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 35 33 - Health and Safety Requirements

.3 Section 01 35 43 - Environmental Procedures

.4 Section 01 74 11 - Cleaning

.5 Section 02 82 00.01 - Asbestos Abatement - Minimum Precautions

.6 Section 02 82 00.02 - Asbestos Abatement - Intermediate Precautions

.7 Section 02 82 00.03 - Asbestos Abatement - Maximum Precautions

1.2 REFERENCES

.1 Reports

.1 "Hazardous Building Materials Assessments – Buildings of the Pacific Agri-Food Research Centre Agassiz and Abbotsford (Clearbrook), BC", prepared by Stantec Consulting Ltd., dated February, 2013.

.2 "Pre-Demolition Hazardous Building Materials Assessment Pacific Agri-Food Research Centre, Agassiz, British Columbia; Addendum #1–Supplemental Sampling (Asbestos and Lead Leachate); Buildings 6, 6A, 40, 53, 53A, 53B and 67", prepared by Stantec Consulting Ltd., dated October 15, 2013.

.2 Definitions:

.1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.

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

.3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.

.3 Reference Standards:

.1 Canadian Environmental Protection Act,1999 (CEPA 1999)

.1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).

.2 Department of Justice Canada (Jus)

.1 Transportation of Dangerous Goods Act, 1992 (TDG Act) [1992], (c. 34).

.2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).

.3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.4 National Research Council Canada Institute for Research in Construction (NRC-IRC)

.1 National Fire Code of Canada-[2005].

.5 WorkSafe BC

.1 British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97, including amendments to date of work)

.2 "Safe Work Practices for Handling Asbestos" (2012 Edition)

.3 "Lead-Containing Paints and Coatings; Preventing Exposure in the Construction Industry", 2011

.6 Canadian Construction Association (CCA)

.1 Standard Construction Document CCA 82 "mould guidelines for the Canadian construction industry", 2004

.7 The current version of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88)

.8 The Federal Transportation of Dangerous Goods Regulation

.9 The Federal PCB Regulations (SOR/2008-273).

.10 The British Columbia Waste Management Act - Ozone Depleting Substances and Other Halocarbons Regulation (BC Reg. 387/99).

.11 The Federal Halocarbons Regulation, July 2003

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS MSDS in accordance with Sections 01 35 33 - Health and Safety Requirements and 01 35 43 - Environmental Procedures to Departmental Representative for each hazardous material required prior to bringing hazardous material on site.

.3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.

.4 Low-Emitting Materials: submit listing of adhesives and sealants used in building, comply with VOC and chemical component limits or restrictions requirements.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

.4 Storage and Handling Requirements:

.1 Co-ordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.

.2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.

.3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.

.4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.

.1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.

.2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.

.5 Transfer of flammable and combustible liquids is prohibited within buildings.

.6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.

.7 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.

.8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.

.9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.

.10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:

.1 Store hazardous materials and wastes in closed and sealed containers.

.2 Label containers of hazardous materials and wastes in accordance with WHMIS.

.3 Store hazardous materials and wastes in containers compatible with that material or waste.

.4 Segregate incompatible materials and wastes.

.5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.

.6 Store hazardous materials and wastes in secure storage area with controlled access.

.7 Maintain clear egress from storage area.

.8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.

.9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.

.10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.

.11 When hazardous waste is generated on site:

.1 Co-ordinate transportation and disposal with Departmental Representative.

.2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.

.3 Use licensed carrier authorized by provincial authorities to accept subject material.

.4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.

.5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.

.6 Only trained personnel handle, offer for transport, or transport dangerous goods.

.7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.

.8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Departmental Representative.

.9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

.12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.

.13 Report spills or accidents immediately to Departmental Representative and Consultant. Submit a written spill report to Departmental Representative within 24 hours of incident.

Part 2 Products

2.1 MATERIALS

.1 Description:

.1 Bring on site only quantities hazardous material required to perform Work.

.2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

Part 3 Execution

3.1 HAZARDOUS MATERIALS ABATEMENT

.1 Scope of Abatement Activities (other than Asbestos – specified elsewhere)

.1 Abatement shall be conducted to remove and dispose of hazardous building materials as identified in the Assessment Report and Addendum Report in accordance with applicable regulations, guidelines, standards and/or best practices for such work.

.2 The listing below is a summary of the identified hazardous building materials (other than asbestos and mould) and associated removal and disposal regulations, guidelines and/or standards.

Lead

Demolition related to hazardous materials abatement to be conducted in accordance with the requirements of the current version of the WorkSafe BC publication "Lead-Containing Paint and Coatings: Preventing Exposure in the Construction Industry", keeping airborne exposure to lead dust to less than the 8-hour Occupational Exposure Limit (OEL) for lead of 0.05 milligram per cubic metre (mg/m^3).

Waste transportation to be conducted in accordance the Federal Transportation of Dangerous Goods Regulation.

Waste disposal to be conducted in accordance with the current version of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88).

Lead-containing materials to be considered during the abatement of hazardous materials include the following:

1. Building 40 Residence – Kitchen ceiling with white paint
2. Building 40 Residence – Walls in room 4 with pink paint
3. Building 40 Residence – Walls behind drywall walls in room 4 with green paint (NOTE: Only if impacted during removal of drywall)

Samples of the materials coated with the above-noted paints were analysed for leachable lead content, and analytical results indicated that the following waste materials contain lead in dispersible form such that the leachate contains greater than 5.0 mg/L lead and may be impacted during the abatement of hazardous materials:

1. Building 40 Residence – Walls behind drywall walls in room 4 with green paint (NOTE: Only if impacted and waste is created for disposal during removal of drywall)

It should be noted that various other lead-containing paints were identified through the reports listed in Paragraph 1.2.1 of this Section. However, the above-noted materials are the materials that are expected to be disturbed and/or require disposal during the abatement phase of the work. Other lead-containing paints and materials are expected to be removed for disposal during the demolition phase, which will be initiated as a separate project.

Polychlorinated Biphenyls (PCBs)

For the approximately two (2) light fixtures of older vintage:

1. Remove all fluorescent lamp fixtures. Assess all ballasts in comparison to the Environment Canada document entitled "Identification of Lamp Ballasts Containing PCBs, Report EPS 2/CC/2", dated August 1991 (or equivalent reference).
2. Sort PCB-containing lamp ballasts from non-PCB-containing lamp ballasts.

Waste transportation to be conducted in accordance the Federal Transportation of Dangerous Goods Regulation.

Dispose of ballasts in accordance with the current version of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88) and The Federal PCB Regulations (SOR/2008-273).

Mercury

Remove all thermostats with mercury-containing switches, fluorescent light tubes and high intensity discharge lights (mercury vapour) and/or other mercury-containing items.

Waste transportation to be conducted in accordance with the Federal Transportation of Dangerous Goods Regulation.

Dispose of waste in accordance with the current version of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88).

Ozone-Depleting Substances (ODSs)

ODSs within equipment to be drained and recaptured by licensed technicians in accordance with the Federal Halocarbons Regulations, complete with appropriate support documentation to be provided to the CONSULTANT.

Waste transportation to be conducted in accordance the Federal Transportation of Dangerous Goods

Regulation.

Waste disposal to be conducted in accordance with the British Columbia Waste Management Act - Ozone Depleting Substances and Other Halocarbons Regulation (BC Reg. 387/99).

Equipment with Radioactive Components

Radioactive components were identified as part of the fire/smoke detection systems present in various locations throughout.

If radioactive components are identified for removal, these items should be transported and disposed of in accordance with the following:

- The Federal *Transportation of Dangerous Goods Act*
- The *Nuclear Safety and Control Act* (1997, c.9), Nuclear Substances and Radiation Devices Regulations (SOR/2000-207).

3.2 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning. Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: dispose of waste materials in accordance with Section 02 81 01 – Hazardous Materials

.1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.

.2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.

.3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.

.4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.

.5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

.6 Dispose of hazardous wastes in timely fashion in accordance with applicable federal and provincial regulations.

.7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

.8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:

.1 Hazardous wastes recycled in manner constituting disposal.

.2 Hazardous waste burned for energy recovery.

.3 Lead-acid battery recycling.

.4 Hazardous wastes with economically recoverable precious metals.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Unless otherwise determined through risk assessment conducted by a qualified person, comply with requirements of this Section when performing following Work:

.1 Installing enclosures and/or conducting set-up activities for asbestos abatement work covered under Section 02 82 00.02 – Asbestos Abatement Intermediate Precautions and Section 02 82 00.03 – Asbestos Abatement Maximum Precautions.

1.2 SECTION INCLUDES

.1 Requirements and procedures for applicable procedures and personal protective equipment to be utilized during set-up of asbestos abatement work areas.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 35 33 - Health and Safety Requirements for Contaminated Sites

.3 Section 02 81 01 – Hazardous Materials

.4 Section 02 82 00.02 – Asbestos Abatement Intermediate Precautions

.5 Section 02 82 00.03 – Asbestos Abatement Maximum Precautions.

1.4 REFERENCES

.1 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.2 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

1.5 DEFINITIONS

.1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.

.2 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow thorough wetting of fibres.

.3 Asbestos-Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.

.4 Asbestos Work Area: area where work takes place which will, or may, disturb ACMs.

.5 Authorized Visitors: Consultant or Departmental Representative and representatives of regulatory agencies.

.6 Competent worker: in relation to specific work, means a worker who:

.1 Is qualified because of knowledge, training and experience to perform the work.

.2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.

.3 Has knowledge of all potential or actual danger to health or safety in the work.

.7 Friable material: means material that:

.1 When dry, can be crumbled, pulverized or powdered by hand pressure, or

.2 is crumbled, pulverized or powdered.

.8 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.9 Occupied Area: any area of the building or work site that is outside Asbestos Work Area.

.10 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.

.11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for work.

1.6 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of asbestos-containing waste in accordance with requirements of authority having jurisdiction.

.3 Submit Provincial/Territorial and/or local requirements for Notice of Project Form.

.4 Submit proof of Contractor's Asbestos Liability Insurance.

.5 Submit to Departmental Representative necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed.

.6 Submit proof that all asbestos workers and/or supervisor have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene and work practices while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing.

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

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial, and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications, more stringent requirement applies. Comply with regulations in effect at time Work is performed.

.2 Health and Safety:

.1 Perform construction occupational health and safety in accordance with Section 01 35 29.14 - Health and Safety Requirements for Contaminated Sites

.2 Safety Requirements: worker protection.

.1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:

.1 Air purifying half-mask respirator with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.

.2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing shall consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing to include suitable footwear, and to be repaired or replaced if torn.

.2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.3 Before leaving Asbestos Work Area, the worker can decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before

removal from the work area, and removed from the work area frequently and at regular intervals.

.4 Facilities for washing hands and face shall be provided within or close to the Asbestos Work Area.

.5 Ensure workers wash hands and face when leaving Asbestos Work Area. Facilities for washing are to be supplied by the Contractor.

.6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 02 81 01 – Hazardous Materials

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal packaging material in appropriate on-site bins for recycling.

.4 Place materials defined as hazardous or toxic in designated containers.

.5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.6 Fold up metal banding, flatten and place in designated area for recycling.

.7 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6 mil bags or leak proof drums. Label containers with appropriate warning labels.

.8 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.9 EXISTING CONDITIONS

.1 Reports and information pertaining to ACMs to be handled, removed, or otherwise disturbed and disposed of during this project are bound into this specification in **Appendix A**.

.2 Notify Departmental Representative of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Departmental Representative.

1.10 SCHEDULING

.1 Hours of Work: perform work during normal working hours as indicated in Contract Documents.

1.11 OWNER'S INSTRUCTIONS

.1 Before beginning Work, provide Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal

hygiene and work practices, and in use, cleaning, and disposal of respirators and protective clothing.

.2 Instruction and training related to respirators includes, following minimum requirements:

.1 Fitting of equipment.

.2 Inspection and maintenance of equipment.

.3 Disinfecting of equipment.

.4 Limitations of equipment.

.3 Instruction and training must be provided by a competent, qualified person.

Part 2 Products

2.1 MATERIALS

.1 Drop Sheets:

.1 Polyethylene: 0.15 mm thick.

.2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.

.2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in a concentration to provide thorough wetting of asbestos-containing material.

.3 Waste Containers: contain waste in two separate containers.

.1 Inner container: 0.15 mm thick sealable polyethylene waste bag.

.2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.

.3 Labelling requirements: affix pre-printed cautionary asbestos warning in both official languages that is visible when ready for removal to disposal site.

.4 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.

.5 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

Part 3 Execution

3.1 PROCEDURES

.1 Do construction occupational health and safety in accordance Section 01 35 29.14 - Health and Safety Requirements for Contaminated Sites.

.2 Before beginning Work, isolate Asbestos Work Area using, minimum, preprinted cautionary asbestos warning signs in both official languages that are visible at access routes to Asbestos Work Area.

.1 Remove visible dust from surfaces in the work area where dust is likely to be disturbed during course of work.

.2 Use HEPA vacuum or damp cloths where damp cleaning does not create a hazard and is otherwise appropriate.

.3 Do not use compressed air to clean up or remove dust from any surface.

.3 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.

.1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in Asbestos Work Area where dust and contamination cannot otherwise be safely contained. Drop sheets are not to be reused.

.4 Wet materials containing asbestos to be cut, ground, abraded, scraped, drilled, or otherwise disturbed unless wetting creates hazard or causes damage.

.1 Use garden reservoir type low - velocity fine - mist sprayer.

.2 Perform Work to reduce dust creation to lowest levels practicable.

.3 Work will be subject to visual inspection and air monitoring.

.4 Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.

.5 Frequently and at regular intervals during Work and immediately on completion of work:

.1 Dust and waste to be cleaned up and removed using a vacuum equipped with a HEPA filter, or by damp mopping or wet sweeping, and placed in a waste container, and

.2 Drop sheets to be wetted and placed in a waste container as soon as practicable.

.6 Cleanup:

.1 Place dust and asbestos containing waste in sealed dust-tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste; wet and fold these items to contain dust, and then place in plastic bags.

.2 Clean exterior of each waste-filled bag using damp cloths or HEPA vacuum and place in second clean waste bag immediately prior to removal from Asbestos Work Area.

.3 Seal waste bags and remove from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal Authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that the appropriate guidelines and regulations for asbestos disposal are followed.

.4 Perform final thorough clean-up of Work areas and adjacent areas affected by Work using HEPA vacuum.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Unless otherwise determined through risk assessment conducted by a qualified person, comply with requirements of this Section when performing following Work:

- .1 Removal of asbestos-containing floor tiles (12"x12" size) in the 2nd floor bedroom 4 of Building 6
- .2 Removal of asbestos containing fire stop within the basement of Building 6, where the furnace exhaust leads into the chimney
- .3 Removal of asbestos-containing drywall joint compound in the water tank room of Building 53
- .4 Removal of asbestos-containing cement panels within walls in the water tank room (and presumed present within ceiling) in Building 53
- .5 Removal of asbestos-containing drywall joint compound throughout Building 40 (Farm 2 site)
- .6 Removal of asbestos-containing cement panels from within the east wall in the kitchen of Building 40 (Farm 2 site)
- .7 Removal of cement panelling from Building 67 (Farm 2 site)

1.2 SECTION INCLUDES

.1 Requirements and procedures for asbestos abatement of asbestos containing materials of the type described within.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 35 33 - Health and Safety Requirements for Contaminated Sites

.3 Section 02 81 01 – Hazardous Materials

.4 Section 02 82 00.01 – Asbestos Abatement Minimum Precautions

.5 Section 02 82 00.03 – Asbestos Abatement Maximum Precautions

1.4 REFERENCES

.1 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-1.205-[94], Sealer for Application of Asbestos Fibre Releasing Materials.

.2 Department of Justice Canada (Jus)

- .1 Canadian Environmental Protection Act, 1999 (CEPA).

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

- .1 Material Safety Data Sheets (MSDS).

.4 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.5 Underwriters' Laboratories of Canada (ULC)

1.5 DEFINITIONS

.1 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

.2 Asbestos Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.

.3 Asbestos Work Area: area where work takes place which will, or may disturb ACMs.

.4 Authorized Visitors: Departmental Representative, and representatives of regulatory agencies.

.5 Competent worker: in relation to specific work, means a worker who:

.1 Is qualified because of knowledge, training and experience to perform the work.

.2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.

.3 Has knowledge of all potential or actual danger to health or safety in the work.

.6 Friable Materials: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.7 Glove Bag: prefabricated glove bag as follows:

.1 Minimum thickness 0.25 mm (10 mil) polyvinyl-chloride bag.

.2 Integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elastic ports.

.3 Equipped with reversible double pull double throw zipper on top and at approximately mid-section of the bag.

.4 Straps for sealing ends around pipe.

.8 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any dimension at 99.97% efficiency.

.9 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.10 Occupied Area: any area of building or work site that is outside Asbestos Work Area.

.11 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.

.12 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.

1.6 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of asbestos containing waste in accordance with requirements of authority having jurisdiction.

.3 Submit Provincial/Territorial and/or local requirements for Notice of Project Form.

.4 Submit proof of Contractor's Asbestos Liability Insurance.

.5 Submit to Departmental Representative necessary permits for transportation and disposal of asbestos containing waste and proof that asbestos containing waste has been received and properly disposed.

.6 Submit proof satisfactory to Departmental Representative that all asbestos workers have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene, entry and exit from Asbestos Work Area, aspects of work procedures and protective measures while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing.

.7 Submit proof that supervisory personnel have attended asbestos abatement course, of not less than two days duration. Minimum of one supervisor for every ten workers.

.8 Submit Worker's Compensation Board status and transcription of insurance.

.9 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:

- .1 Encapsulants;
- .2 Amended water;
- .3 Slow drying sealer.

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

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at the time work is performed.

.2 Health and Safety:

- .1 Do construction occupational health and safety in accordance with Section 01 35 29.14 - Health and Safety Requirements for Contaminated Sites.
- .2 Safety Requirements: worker and visitor protection.
  - .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:

.1 Full-facepiece powered, air purifying half-mask respirator with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.

.2 Disposable type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing to consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing. It includes suitable footwear, and it to be repaired or replaced if torn.

.3 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.4 Before leaving Asbestos Work Area, the worker can decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.

.5 Ensure workers wash hands and face when leaving Asbestos Work Area..

.6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

.7 Visitor Protection:

.1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.

.3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 02 81 01 – Hazardous Materials.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal packaging material in appropriate on-site bins for recycling.

.4 Separate for reuse and recycling and place in designated containers steel, metal, and/or plastic waste.

.5 Place materials defined as hazardous or toxic in designated containers.

.6 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.7 Fold up metal banding, flatten and place in designated area for recycling.

.8 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial/Territorial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6 mil bags or leak proof drums. Label containers with appropriate warning labels.

.9 Provide manifests describing and listing waste created. Transport containers by approved means to licenced landfill for burial.

1.9 EXISTING CONDITIONS

.1 Reports and information pertaining to ACMS to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification in **Appendix A.**

.2 Notify Departmental Representative of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative.

1.10 SCHEDULING

.1 Hours of Work: perform work during normal working hours.

1.11 OWNER'S INSTRUCTIONS

.1 Before beginning Work, provide Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene and work practices, in use of glove bag procedures, and in use, cleaning, and disposal of respirators and protective clothing.

.2 Instruction and training related to respirators includes, at minimum:

- .1 Fitting of equipment.
- .2 Inspection and maintenance of equipment.
- .3 Disinfecting of equipment.
- .4 Limitations of equipment.

.3 Instruction and training must be provided by competent, qualified person.

Part 2 Products

2.1 MATERIALS

.1 Drop and Enclosure Sheets:

- .1 Polyethylene: 0.15 mm thick.
- .2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.

.2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.

.3 Waste Containers: contain waste in two separate containers.

- .1 Inner container: 0.15 mm thick sealable polyethylene bag or where glove bag method is used, glove bag itself.
- .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.
- .3 Labelling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site.

.4 Glove bag:

- .1 Acceptable materials: safe-T-Strip products in configuration suitable for Work, or Alternative material approved by addendum during tendering period in accordance with Instructions to Tenderers.
- .2 The glove bag to be equipped with:
  - .1 Sleeves and gloves that are permanently sealed to the body of the bag to allow the worker to access and deal with the insulation and maintain a sealed enclosure throughout the work period.
  - .2 Valves or openings to allow insertion of a vacuum hose and the nozzle of a water sprayer while maintaining the seal to the pipe, duct or similar structure.
  - .3 A tool pouch with a drain.
  - .4 A seamless bottom and a means of sealing off the lower portion of the bag.
  - .5 A high strength double throw zipper and removable straps, if the bag is to be moved during the removal operation.

.5 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.

.6 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.

- .1 Sealer: flame spread and smoke developed rating less than 50.

.7 Encapsulant: penetrating type conforming to CAN/CGSB-1.205.

Part 3 Execution

3.1 SUPERVISION

.1 Minimum of one Supervisor for every ten workers is required.

.2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos-containing materials.

3.2 PROCEDURES

.1 Do construction occupational health and safety in accordance with Section 01 35 33 - Health and Safety Requirements for Contaminated Sites.

.2 Before beginning Work, at each access to Asbestos Work Area, install warning signs in both official languages in upper case 'Helvetica Medium' letters reading as follows, where number in parentheses indicates font size to be used: 'CAUTION ASBESTOS HAZARD AREA (25 mm) / NO UNAUTHORIZED ENTRY (19 mm) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) / BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)'.

.3 Before beginning Work remove visible dust from surfaces in work area where dust is likely to be disturbed during course of work.

- .1 Use HEPA vacuum or damp cloths where damp cleaning does not create hazard and is otherwise appropriate.
- .2 Do not use compressed air to clean up or remove dust from any surface.

.4 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.

- .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in work areas where dust or contamination cannot otherwise be safely contained.

.5 Remove loose material by HEPA vacuum; thoroughly wet friable material containing asbestos to be removed or disturbed before and during Work unless wetting creates hazard or causes damage.

- .1 Use garden reservoir type low - velocity sprayer or airless spray equipment capable of producing mist or fine spray.
- .2 Perform Work in a manner to reduce dust creation to lowest levels practicable.

.6 Work is subject to visual inspection and air monitoring. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.

.7 Cleanup:

- .1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.
- .2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.

.3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.

.4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.

.5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.

3.3 AIR MONITORING

.1 From beginning of Work until completion of cleaning operations, Consultant to take air samples inside and outside of Asbestos Work Area enclosure[s] in accordance with Provincial/Territorial Occupational Health and Safety Regulations.

.1 Consultant will be responsible for monitoring inside enclosure in accordance with applicable Provincial/Territorial Occupational Health and Safety Regulations.

.2 If air monitoring shows that areas outside Asbestos Work Area enclosure[s] are contaminated, enclose, maintain and clean these areas in same manner as that applicable to Asbestos Work Area.

.3 Ensure that respiratory safety factors are not exceeded.

.4 During the course of Work, Consultant to measure fibre content of air outside Work areas by means of air samples analyzed by Phase Contrast Microscopy (PCM).

.1 Stop Work when PCM measurements exceed 0.05 f/cc and correct procedures.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Unless otherwise determined through risk assessment conducted by a qualified person, comply with requirements of this Section when performing following Work:

.1 Removal of asbestos-containing vinyl sheet flooring – beige and cream pebble pattern within the upper main floor dining room of Building 6, and presumed to be present throughout upper main floor of Building 6 as a sub-layer of flooring (Farm 2 site).

.2 Removal of asbestos-containing vinyl sheet flooring – beige pebble pattern, in the kitchen as a sub-layer in Building 40 (Farm 2 site).

1.2 SECTION INCLUDES

.1 Requirements and procedures for asbestos abatement of asbestos containing materials of the type described within.

1.3 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 35 33 - Health and Safety Requirements for Contaminated Sites

.3 Section 02 81 01 – Hazardous Materials

.4 Section 02 82 00.01 – Asbestos Abatement Minimum Precautions

.5 Section 02 82 00.02 – Asbestos Abatement Intermediate Precautions

1.4 REFERENCES

.1 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.205-[94], Sealer for Application to Asbestos-Fibre-Releasing Materials.

.2 Canadian Standards Association (CSA International)

.3 Department of Justice Canada

.1 Canadian Environmental Protection Act (CEPA), 1999.

.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.5 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.6 Underwriters' Laboratories of Canada (ULC)

.7 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention (CDC)/National Institute for Occupational Safety and Health (NIOSH)

.1 NIOSH 94-113-[August 1994], NIOSH Manual of Analytical Methods (NMAM), 4th Edition.

.8 U.S. Department of Labour - Occupational Safety and Health Administration - Toxic and Hazardous Substances

.1 29 CFR 1910.1001-[2001], Asbestos Regulations.

1.5 DEFINITIONS

.1 Airlock: system for permitting ingress or egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two curtained doorways at least 2 m apart.

.2 Amended Water: water with a non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

.3 Asbestos Containing Materials (ACMs): materials that contain 0.5 per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.

.4 Asbestos Work Areas: area where work takes place which will, or may disturb ACMs.

.5 Authorized Visitors: Departmental Representative, Consultant, and representatives of regulatory agencies.

.6 Competent worker: in relation to specific work, means a worker who:

.1 Is qualified because of knowledge, training and experience to perform the work.

.2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.

.3 Has knowledge of all potential or actual danger to health or safety in the work.

.7 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed as follows:

.1 Place two overlapping sheets of polyethylene over existing or temporarily framed doorway, secure each along top of doorway, secure vertical edge of one sheet along one vertical side of doorway, and secure vertical edge of other sheet along opposite vertical side of doorway.

.2 Reinforce free edges of polyethylene with duct tape and weight bottom edge to ensure proper closing.

.3 Overlap each polyethylene sheet at openings not less than 1.5 m on each side.

.8 DOP Test: testing method used to determine integrity of Negative Pressure unit using dioctyl phthalate (DOP) HEPA-filter leak test.

.9 Friable Materials: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.10 Glove Bag: prefabricated glove bag as follows:

.1 Minimum thickness 0.25 mm (10 mil) polyvinyl-chloride bag.

.2 Integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elastic ports.

.3 Equipped with reversible double pull double throw zipper on top and at approximately mid-section of the bag.

.4 Straps for sealing ends around pipe.

.11 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.

.12 Negative pressure: system that extracts air directly from work area, filters such extracted air through High Efficiency Particulate Air filtering system, and discharges this air directly outside work area to exterior of building.

.1 System to maintain minimum pressure differential of 5 Pa relative to adjacent areas outside of work areas, be equipped with alarm to warn of system breakdown, and be equipped with instrument to continuously monitor and automatically record pressure differences.

.13 Non-Friable Materials: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.14 Occupied Areas: any area of building or work site that is outside Asbestos Work Area.

.15 Polyethylene sheeting sealed with tape: polyethylene sheeting of type and thickness specified sealed with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide continuous polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of asbestos fibres through sheeting into clean area.

.16 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

1.6 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Before beginning work:

.1 Obtain from appropriate agency and submit to Departmental Representative necessary permits for transportation and disposal of asbestos waste. Ensure that dump 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 asbestos waste.

.2 Submit proof satisfactory to Departmental Representative that all asbestos workers have received appropriate training and education by a competent person on hazards of asbestos exposure, good personal hygiene, entry and exit from Asbestos Work Area, aspects of work procedures and protective measures while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing. Submit proof of attendance in form of certificate.

.3 Ensure supervisory personnel have attended asbestos abatement course, of not less than two days duration. Submit proof of attendance in form of certificate. Minimum of one Supervisor for every ten workers.

.4 Submit layout of proposed enclosures and decontamination facilities to Departmental Representative for review.

.5 Submit documentation including test results for sealer proposed for use.

.6 Submit Provincial/Territorial and/or local requirements for Notice of Project form.

.7 Submit proof of Contractor's Asbestos Liability Insurance.

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

.9 Submit Worker's Compensation Board status and transcription of insurance.

.10 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including but not limited to following:

.1 Encapsulants.

.2 Amended water.

.3 Slow drying sealer.

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to asbestos, provided that in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.14 - Health and Safety Requirements for Contaminated Sites.

.2 Safety Requirements: worker and visitor protection.

.1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area includes:

.1 Powered air purifying respirator (PAPR) with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to

be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.

.2 Disposable type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing to consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing. It includes suitable footwear, and it to be repaired or replaced if torn. Requirements for each worker:

.1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters that have been tested as satisfactory, clean coveralls and head covers before entering Equipment and Access Rooms or Asbestos Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.

.2 Remove gross contamination from clothing before leaving work area then proceed to Equipment and Access Room and remove clothing except respirators. Place contaminated work suits in receptacles for disposal with other asbestos - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. Still wearing the respirator proceed naked to showers. Using soap and water wash body and hair thoroughly. Clean outside of respirator with soap and water while showering; remove respirator; remove filters and wet them and dispose of filters in container provided for purpose; and wash and rinse inside of respirator. When not in use in work area, store work footwear in Equipment and Access Room. Upon completion of asbestos abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from work area or from Equipment and Access Room.

.3 After showering and drying off, proceed to clean change room and dress in street clothes at end of each day's work, or in clean coveralls before eating, smoking, or drinking. If re-entering work area, follow procedures outlined in paragraphs above.

.4 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of Container and Equipment Decontamination Enclosure system. Workers must not use this system as means to leave or enter work area.

.2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.3 Ensure workers are fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual asbestos abatement.

.4 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.

.5 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

.6 Visitor Protection:

.1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.

.3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance Section 02 81 01 – Hazardous Materials.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal packaging material in appropriate on-site bins for recycling.

.4 Separate for reuse and recycling and place in designated containers steel, metal, and plastic waste.

.5 Place materials defined as hazardous or toxic in designated containers.

.6 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.7 Fold up metal banding, flatten and place in designated area for recycling.

.8 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6mil bags or leak proof drums. Label containers with appropriate warning labels.

.9 Provide manifests describing and listing waste created. Transport containers by approved means to licenced landfill for burial.

1.9 EXISTING CONDITIONS

.1 Results of tests of asbestos containing materials to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification in **Appendix A**. These are for general information only and are not necessarily representative of asbestos containing materials covered within scope of this Project.

.2 Notify Departmental Representative of suspect asbestos containing material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative.

1.10 SCHEDULING

.1 Submit to Departmental Representative copy of notifications prior to start of Work.

.2 Hours of Work: perform work during normal working hours.

1.11 OWNER'S INSTRUCTIONS

.1 Before beginning Work, provide to Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene including dress and showers, in entry and exit from Asbestos Work Area, in aspects of work procedures including glove bag procedures, and in use, cleaning, and disposal of respirators and protective clothing.

.2 Instruction and training related to respirators includes, at minimum:

- .1 Proper fitting of equipment.
- .2 Inspection and maintenance of equipment.
- .3 Disinfecting of equipment.
- .4 Limitations of equipment.

.3 Instruction and training must be provided by competent, qualified person.

.4 Supervisory personnel to complete required training.

Part 2 Products

2.1 MATERIALS

.1 Polyethylene: minimum 0.15 mm thick unless otherwise specified; in sheet size to minimize joints.

.2 FR polyethylene: minimum 0.15 mm thick, woven fibre reinforced fabric bonded both sides with polyethylene.

.3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under both dry conditions and wet conditions using amended water.

.4 Wetting agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether, or other material approved by Departmental Representative, mixed with water in concentration to provide adequate penetration and wetting of asbestos containing material.

.5 Waste Containers: contain waste in two separate containers.

- .1 Inner container: 0.15 mm thick sealable polyethylene bag.
- .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.

.3 Labelling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site. Label containers in accordance with Asbestos Regulations 29 CFR 1910.1001. Label in both official languages.

.6 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.

.7 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.

.8 Sealer: flame spread and smoke developed rating less than 50.

.9 Encapsulants: Type 1 penetrating type Class A water based conforming to CAN/CGSB-1.205 and approved by the Fire Commissioner of Canada having following characteristics:

.10 Sprayed fireproofing: ULC labelled and listed asbestos-free to provide degree of fire or thermal protection required.

Part 3 Execution

3.1 PREPARATION

.1 Do construction occupational health and safety in accordance with Section 01 35 29.14 - Health and Safety Requirements for Contaminated Sites.

.2 Work Areas:

.1 Shut off and isolate air handling and ventilation systems to prevent fibre dispersal to other building areas during work phase. Conduct smoke tests to ensure that duct work is airtight. Seal and caulk joints and seams of active return air ducts within Asbestos Work Area.

.2 Clean proposed work areas using, where practicable, HEPA vacuum cleaning equipment. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum equipment.

.3 The spread of dust from the work area to be prevented by:

.1 Using enclosures of polyethylene or other suitable material that is impervious to asbestos (including, if the enclosure material is opaque, one or more transparent window areas to allow observation of the entire work area from outside the enclosure), if the work area is not enclosed by walls.

.2 Using curtains of polyethylene sheeting or other suitable material that is impervious to asbestos, fitted on each side of each entrance or exit from the work area.

.4 Put negative pressure system in operation and operate continuously from time first polyethylene is installed to seal openings until final completion of work including final cleanup. Provide continuous monitoring of pressure difference using automatic recording instrument. The system to maintain a negative air pressure, relative to the area outside the enclosed area. The system to be inspected and maintained by a competent person prior each use to ensure that there is no air

leakage, and if the filter is found to be damaged or defective, it to be replaced before the ventilation system is used.

.5 Seal off openings such as corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.

.6 Cover floor and wall surfaces with polyethylene sheeting sealed with tape. Cover floors first so that polyethylene extends at least 300 mm up walls then cover walls to overlap floor sheeting.

.7 Build airlocks at entrances to and exits from work areas so that work areas are always closed off by one curtained doorway when workers enter or exit.

.8 At each access to work areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where number in parentheses indicates font size to be used: "CAUTION ASBESTOS HAZARD AREA (25 mm) NO UNAUTHORIZED ENTRY (19 mm) WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)".

.9 After work area isolation, remove heating, ventilating, and air conditioning filters, pack in sealed plastic bags 0.15 mm minimum thick and treat as contaminated asbestos waste. Remove ceiling - mounted objects such as lights, partitions, other fixtures not previously sealed off, and other objects that interfere with asbestos removal, as directed by Departmental Representative. Use localized water spraying during fixture removal to reduce fibre dispersal.

.10 Maintain emergency and fire exits from work areas, or establish alternative exits satisfactory to Fire Commissioner of Canada and Provincial/Territorial Fire Marshall Authority having jurisdiction.

.11 Where application of water is required for wetting asbestos containing materials, shut off electrical power, provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.12 After preparation of work areas and Decontamination Enclosure Systems, for the removal of all other asbestos containing materials, remove within work area and dispose of as contaminated waste in specified containers. Spray asbestos debris and immediate work area with amended water to reduce dust, as work progresses.

.3 Worker Decontamination Enclosure System:

.1 Worker Decontamination Enclosure System includes Equipment and Access Room, Shower Room, and Clean Room, as follows:

.1 Equipment and Access Room: build Equipment and Access Room between Shower Room and work area[s], with two curtained doorways, one to Shower Room and one to work area[s]. Install portable toilet, waste receptor, and storage facilities for workers' shoes and protective clothing to be reworn in work area[s]. Build Equipment and Access Room large enough to accommodate specified facilities, other equipment needed, and at least one worker allowing him /her sufficient space to undress comfortably.

.2 Shower Room: build Shower Room between Clean Room and Equipment and Access Room, with two curtained doorways, one to Clean Room and one to Equipment and Access Room. Provide one shower for every five workers. Provide constant supply of hot and cold or warm water. Provide

piping and connect to water sources and drains. Pump waste water through 5 micrometre filter system before directing into drains. Provide soap, clean towels, and appropriate containers for disposal of used respirator filters.

.3 Clean Room: build Clean Room between Shower Room and clean areas outside of enclosures, with two curtained doorways, one to outside of enclosures and one to Shower Room. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.

.4 Container and Equipment Decontamination Enclosure System:

.1 Container and Equipment Decontamination Enclosure System consists of Staging Area within work area, Washroom, Holding Room, and Unloading Room. Purpose of system is to provide means to decontaminate waste containers, scaffolding, waste and material containers, vacuum and spray equipment, and other tools and equipment for which Worker Decontamination Enclosure System is not suitable.

.1 Staging Area: designate Staging Area in work area for gross removal of dust and debris from waste containers and equipment, labelling and sealing of waste containers, and temporary storage pending removal to Washroom. Equip Staging Area with curtained doorway to Washroom.

.2 Washroom: build Washroom between Staging Area and Holding Room with two curtained doorways, one to Staging Area and one to Holding Room. Provide high - pressure low - volume sprays for washing of waste containers and equipment. Pump waste water through 5 micrometre filter system before directing into drains. Provide piping and connect to water sources and drains.

.3 Holding Room: build Holding Room between Washroom and Unloading Room, with two curtained doorways, one to Washroom and one to Unloading Room. Build Holding Room sized to accommodate at least two waste containers and largest item of equipment used.

.4 Unloading Room: build Unloading Room between Holding Room and outside, with two curtained doorways, one to Holding Room and one to outside.

.5 Construction of Decontamination Enclosures:

.1 Build suitable framing for enclosures or use existing rooms where convenient, and line with polyethylene sheeting sealed with tape.

.2 Build curtained doorways between enclosures so that when people move through or when waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.

.6 Maintenance of Enclosures:

.1 Maintain enclosures in tidy condition.

.2 Ensure that barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

.3 Visually inspect enclosures at beginning of each working period.

.4 Use smoke methods to test effectiveness of barriers when directed by Consultant.

.7 Do not begin Asbestos Abatement work until:

.1 Arrangements have been made for disposal of waste.

.2 For wet stripping techniques, arrangements have been made for containing, filtering, and disposal of waste water.

.3 Work area[s] and decontamination enclosures are effectively segregated.

.4 Tools, equipment, and materials waste containers are on hand.

.5 Arrangements have been made for building security.

.6 Warning signs are displayed where access to contaminated areas is possible.

.7 Notifications have been completed and other preparatory steps have been taken.

3.2 SUPERVISION

.1 Minimum of one Supervisor for every ten workers is required.

.2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos containing materials.

3.3 ASBESTOS REMOVAL

.1 Before removing asbestos:

.1 Prepare site.

.2 Spray asbestos material with water containing specified wetting agent, using airless spray equipment capable of providing "mist" application to prevent release of fibres. Saturate asbestos material sufficiently to wet it to substrate without causing excess dripping. Spray asbestos material repeatedly during work process to maintain saturation and to minimize asbestos fibre dispersion.

.2 Remove saturated asbestos material in small sections. Do not allow saturated asbestos to dry out. As it is being removed pack material in sealable plastic bags 0.15 mm minimum thick and place in labelled containers for transport.

.3 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area. Clean external surfaces thoroughly again by wet sponging before moving containers to decontamination Washroom. Wash containers thoroughly in decontamination Washroom, and store in Holding Room pending removal to Unloading Room and outside. Ensure that containers are removed from Holding Room by workers who have entered from uncontaminated areas dressed in clean coveralls.

.4 After completion of stripping work, wire brushed and wet sponged surfaces from which asbestos has been removed to remove visible material. During this work keep surfaces wet.

.5 Where Departmental Representative decides complete removal of asbestos containing material is impossible due to obstructions such as structural members or major service elements, and provides written direction, encapsulate material as follows:

.1 Apply penetrating type sealer to penetrate existing sprayed asbestos surfaces uniformly to substrate.

.6 After wire brushing and wet sponging to remove visible asbestos, and after encapsulating asbestos containing material impossible to remove, wet clean entire work area including

Equipment and Access Room, and equipment used in process. After 24 hour period to allow for dust settling, wet clean these areas and objects again. During this settling period no entry, activity, or ventilation will be permitted. After second 24 hour period under same conditions, clean these areas and objects again using HEPA vacuum followed by wet cleaning. After inspection by Consultant apply continuous coat of slow drying sealer to surfaces of work area. Allow at least 16 hours with no entry, activity, ventilation, or disturbance other than operation of negative pressure units during this period.

.7 Work is subject to visual inspection and air monitoring. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.

.8 Cleanup:

.1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.

.2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.

.3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.

.4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.

.5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.

3.4 FINAL CLEANUP

.1 Following cleaning specified above, and when air sampling shows that asbestos levels on both sides of seals do not exceed 0.01 fibres/cc as determined by membrane filter method at 400-500X magnification phase contrast illumination, as described in NIOSH Method 94-113 or equivalent, proceed with final cleanup.

.2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible asbestos containing particles observed during cleanup, immediately, using HEPA vacuum equipment.

.3 Place polyethylene seals, tape, cleaning material, clothing, and other contaminated waste in plastic bags and sealed labelled waste containers for transport.

.4 Include in clean-up Work areas, Equipment and Access Room, Washroom, Shower Room, and other contaminated enclosures.

.5 Include in clean-up sealed waste containers and equipment used in Work and remove from work areas, via Container and Equipment Decontamination Enclosure System, at appropriate time in cleaning sequence.

.6 Conduct final check to ensure that no dust or debris remains on surfaces as result of dismantling operations and carry out air monitoring again to ensure that asbestos levels in building do not exceed 0.01 fibres/cc. Repeat cleaning using HEPA vacuum equipment, or wet cleaning methods where feasible, in conjunction with sampling until levels meet this criteria.

.7 As work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labelled containers containing asbestos waste and dispose of to authorized disposal area in accordance with requirements of disposal authority. Ensure that each shipment of containers transported to dump is accompanied by Contractor's representative to ensure that dumping is done in accordance with governing regulations.

3.5 AIR MONITORING

.1 From beginning of Work until completion of cleaning operations, Consultant to take air samples on daily basis outside of work area enclosure in accordance with Health Canada recommendations.

.1 Consultant will be responsible for monitoring inside enclosure in accordance with applicable Provincial/Territorial Occupational Health and Safety Regulations.

.2 Use results of air monitoring inside work area to establish type of respirators to be used. Workers may be required to wear sample pumps for up to full-shift periods.

.1 If fibre levels are above safety factor of respirators in use, stop abatement, apply means of dust suppression, and use higher safety factor in respiratory protection for persons inside enclosure.

.2 If air monitoring shows that areas outside work area enclosures are contaminated, enclose, maintain and clean these areas, in same manner as that applicable to work areas.

.3 During course of Work, Consultant to measure fibre content of air outside work areas by means air samples analyzed by Phase Contrast Microscopy (PCM).

.1 Stop Work when PCM measurements exceed 0.05 f/cc and correct procedures.

.4 Final air monitoring to be conducted as follows: After Asbestos Work Area has passed visual inspection and acceptable coat of lock-down agent has been applied to surfaces within enclosure, and appropriate setting period has passed, Consultant will perform air monitoring within Asbestos Work Area.

.1 Final air monitoring results must show fibre levels of less than 0.01 f/cc.

.2 If air monitoring results show fibre levels in excess of 0.01 f/cc, re-clean work area and apply another acceptable coat of lock-down agent to surfaces.

.3 Repeat as necessary until fibre levels are less than 0.01 f/cc.

3.6 INSPECTION

.1 Perform inspection of Asbestos Work Area to confirm compliance with specification and governing authority requirements. Deviation[s] from these requirements that have not been approved in writing by Departmental Representative may result in Work stoppage, at no cost to Owner.

.2 Consultant will inspect Work for:

.1 Adherence to specific procedures and materials.

.2 Final cleanliness and completion.

.3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

.3 When asbestos leakage from Asbestos Work Area has occurred or is likely to occur Departmental Representative may order Work shutdown.

.1 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

END OF SECTION

Public Works and
Government Services Canada

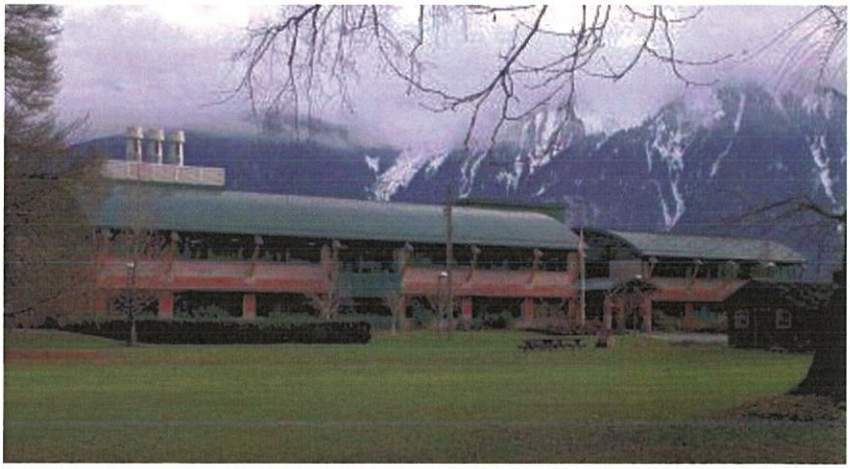
Appendix A - Reports

Real Property Services Branch, Professional and Technical Services, Pacific Region
Room 219 - 800 Burrard Street, Vancouver, B.C. V6Z 0B9

HAZARDOUS BUILDING MATERIALS ASSESSMENTS

Buildings of the Pacific Agri-Food Research Centre Agassiz and Abbotsford (Clearbrook), BC

FINAL REPORT



Prepared for:

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c/o Public Works and Government Services Canada
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1237-10520

Date:

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Stantec

Stantec

EXECUTIVE SUMMARY

Stantec Consulting Ltd. (Stantec) was retained by Agriculture and Agri-Food Canada c/o Public Works and Government Services Canada (PWGSC) to conduct hazardous building materials assessments within 47 buildings (subject buildings) associated with the Pacific Agri-Food Research Centre, with locations in Agassiz and Abbotsford (Clearbrook), BC.

The objective of the project was to assess for the presence (or absence) of hazardous building materials within the subject buildings. The assessment was conducted to meet the requirements of the following:

- Canada Labour Code, Part II Occupational Health and Safety Regulations (Canada Labour Code)
- British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97).

The hazardous building materials considered included asbestos-containing materials (ACMs), lead-containing materials including lead-containing paints (LCPs), polychlorinated biphenyls (PCBs), mercury-containing items, ozone-depleting substances (ODSs), equipment with radioactive components (RACs) and suspected mould-impacted building materials.

Based on Stantec's visual assessment and on the laboratory analyses performed on samples collected, hazardous building materials were identified within many of the subject buildings.

A summary of our findings and recommendations is presented below. It should be noted that this summary is subject to the same restrictions and limitations as presented in **Section 4** (Assessment Limitations) and **Section 8** (Closure). The information provided is to be read in conjunction with the remainder of this report.

Where particular hazardous building materials are not listed in the following table, they were not identified in that particular building.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 4—Residence	**Asbestos** ▪ Vinyl sheet flooring – brown square pattern in the laundry room is asbestos-containing ▪ Vermiculite insulation throughout the attic spaces is asbestos-containing. **Lead** ▪ Grey paint on the floor in the lower main floor rear entrance foyer is lead-containing ▪ White paint on interior walls is lead-containing ▪ Beige paint on the walls in the basement stairwell is lead-containing ▪ White paint on the exterior siding is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mercury** ▪ One (1) mercury-containing thermostat was observed. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 5—2 Car Garage	**Lead** ▪ White paint on the garage's exterior is lead-containing
Building 6—Residence	**Asbestos** ▪ Sheet flooring - beige and cream pebble pattern within the upper main floor dining room is asbestos-containing and is presumed to be present throughout upper main floor as a sub-layer of flooring ▪ Floor tile (12"x12" size) in the 2nd floor bedroom 4 is asbestos-containing ▪ Fire stop within the basement where the furnace exhaust leads into the chimney is asbestos-containing. **Lead** ▪ White colour paint on interior walls is lead-containing ▪ Grey colour paint on lower floor stairwell floor is lead-containing ▪ White colour paint on the exterior is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mercury** ▪ One (1) mercury-containing thermostat was observed ▪ Mercury vapour may be present in fluorescent light tubes. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 6A—Garage	**Lead** ▪ White paint on the exterior is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ Two (2) fluorescent lamp ballasts may contain PCBs. **Mercury** ▪ Mercury vapour may be present in fluorescent light tubes.
Building 7—Residence	**Asbestos** ▪ Vermiculite insulation (debris) present on soil in the unexcavated area of basement is asbestos-containing. Note that soil throughout the unexcavated area is potentially contaminated by vermiculite debris. **Lead** ▪ Cream paint on trim and various walls throughout is lead-containing ▪ Grey paint on the basement floors is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mercury** ▪ One (1) mercury-containing thermostat was observed. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 9—2 Car Garage	**Lead** ▪ White paint on exterior walls is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 13—Heritage Barn	**Asbestos** ▪ Vermiculite insulation (debris) present on the floor in the South ground level entrance – originating from the attic space in this location is asbestos-containing. Potentially present in other enclosed attic spaces (no access during assessment). ▪ Above-noted debris was reportedly removed subsequent to Stantec's assessment. **Lead** ▪ White paint on exterior walls is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ Approximately twenty-five (25) fluorescent lamp ballasts may contain PCBs. **Mercury** ▪ Two (2) mercury-containing thermostats were observed. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed. **Mould** ▪ Suspect mould growth was observed on the floors of the second floor washrooms.
Building 19—Residence	**Lead** ▪ Beige/cream paint on walls throughout is lead-containing ▪ White paint on the exterior is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ Five (5) fluorescent lamp ballasts may contain PCBs. **Mercury** ▪ Two (2) mercury-containing thermostats were observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed. **Mould** ▪ Suspect mould growth was identified on the main floor washroom ceiling.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 20—Carpenter Shop	**Asbestos** ▪ Vinyl sheet flooring – tan mosaic, present in second floor washroom is asbestos-containing. **Lead** ▪ White paint on ceilings in various locations throughout is lead-containing ▪ Red paint on floors in various locations throughout is lead-containing ▪ White paint on exterior walls ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment **PCBs** ▪ Approximately 10 - 20 fluorescent lamp ballasts may contain PCBs. **Mercury** ▪ Six (6) mercury-containing thermostats were observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed. **Mould** ▪ Suspect mould growth was observed on the lower 2 feet of the drywall in the main floor furnace room. ▪ Water staining was observed on ceiling tiles in various locations throughout.
Building 22—Implement Shed	**Lead** ▪ White paint on the exterior is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mercury** ▪ Mercury vapour may be present within approximately 10 high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 28—Poultry House and Offices	**Asbestos** ▪ Vinyl floor tiles (9"x9" tan) in the South office area washroom is asbestos-containing ▪ Vermiculite insulation present in the attic space is asbestos-containing. **Lead** ▪ White paint on exterior walls is lead-containing ▪ Beige paint on the walls and ceilings of the South office area is lead-containing ▪ White paint on the walls and ceilings of the barn area is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ Approximately twenty-four (24) fluorescent lamp ballasts may contain PCBs. **Mercury** ▪ Seven (7) mercury-containing thermostats were observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 29—Poultry Hatchery	**Lead** ▪ Beige paint on walls and ceiling of mechanical room is lead-containing ▪ White paint on exterior walls is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ Approximately twenty (20) fluorescent lamp ballasts may contain PCBs **Mercury** ▪ One (1) mercury-containing thermostat was observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 34—Forage Dryers-Lab	**Asbestos** ▪ Fire stop material present in the Utility Room on one (1) wall penetration is asbestos-containing ▪ Destructive testing should be conducted prior to renovation/demolition of masonry block walls to confirm whether vermiculite insulation is present. **Lead** ▪ White paint on exterior trim, doors and garage roll-up doors is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ Approximately twenty-three (23) fluorescent lamp ballasts may contain PCBs. **Mercury** ▪ Two (2) mercury-containing thermostats were observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed. **Mould** ▪ Moisture-impacted suspended ceiling tiles were observed in the Workshop, Hallway, Electrical Room and Washroom (Coat Room has a drywall ceiling) ▪ Moisture-impacted fibreglass insulation was observed in the Workshop, Hallway, Coat Room, Electrical Room and Washroom within the ceiling space.
Building 35—Storage (Sheep Barn)	**Lead** ▪ White paint on the exterior of the building is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ One (1) fluorescent lamp ballast may contain PCBs. **Mercury** ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Stored equipment in a main floor storage room suspected to contain radioactive components were observed ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 47—Machine Shop	**PCBs** ▪ Six (6) fluorescent lamp ballasts may contain PCBs **Mercury** ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 51—Picnic Shelter	**Lead** ▪ White paint on washroom walls is lead-containing ▪ Orange paint on interior and exterior trim is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment.
Building 53—Water Supply	**Asbestos** ▪ Drywall joint compound in the water tank room is asbestos-containing ▪ Cement panels within walls in the water tank room (and presumed present within ceiling) is asbestos-containing ▪ Destructive testing should be conducted prior to renovation/demolition of masonry block walls to confirm whether vermiculite insulation is present. **Lead** ▪ White paint on the exterior is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mercury** ▪ One (1) mercury-containing thermostat was observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed. **Mould** ▪ Suspect mould was observed on mechanical pipe lagging and various surfaces throughout.
Building 53A—Well 1	**Lead** ▪ Green paint on the building's exterior is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment.
Building 53B—Well 2	**Lead** ▪ Green paint on the building's exterior is presumed lead-containing based on Building 53A Well 1 paint sample results – same construction time and materials used ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 54—Poultry Cage House	**Asbestos** ▪ Drywall joint compound in the mechanical/electrical room is asbestos-containing ▪ Exterior cement panels under the aluminum siding is asbestos-containing ▪ Cementitious insulation on mechanical pipe fittings throughout is asbestos-containing. **Lead** ▪ Grey paint on floors throughout is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ Approximately fifteen (15) fluorescent lamp ballasts may contain PCBs. **Mercury** ▪ One (1) mercury-containing thermostat was observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 55—Poultry Barn	**Asbestos** ▪ Exterior cement panels under the aluminum siding is asbestos-containing (same application and visually similar to material sampled and confirmed to be asbestos-containing for Building 54 Poultry Cage House). **Lead** ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ One (1) fluorescent lamp ballast may contain PCBs. **Mercury** ▪ Four (4) mercury-containing thermostats were observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 65—Metal Storage Shed (from prison)	**Lead** ▪ White paint on exterior walls is lead-containing.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 71— Feedmill Lab	**Lead** ▪ Light yellow paint on block walls is lead-containing ▪ Bright yellow paint on interior trim is lead-containing ▪ Dark yellow paint on storage area door is lead-containing ▪ Light brown paint on exterior doors is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mercury** ▪ Seven (7) mercury-containing thermostats were observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 72— New Greenhouse	**Lead** ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mercury** ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 73— P.C.B. Storage	**PCBs** ▪ Reportedly houses various types of PCB-containing equipment. No suspected PCB-containing items were observed on the exterior of the building. **Mercury** ▪ Mercury-containing equipment may be present within the interior of the building. No such items were observed on the exterior of the building. **Equipment with Radioactive Components** ▪ Equipment containing radioactive components may be present. **Mould** ▪ Suspect mould was not observed pertaining to exterior building materials. Mould and/or moisture-impacted building materials or contents may be present within the interior of the building.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 74—Chemical Storage	**Lead** ▪ The presence of presumed lead-containing items within the building could not be confirmed. No such items were observed on the exterior of the building. **Mercury** ▪ Mercury-containing equipment may be present within the interior of the building. No such items were observed on the exterior of the building. **Equipment with Radioactive Components** ▪ Equipment containing radioactive components may be present. **Mould** ▪ Suspect mould was not observed pertaining to exterior building materials. Mould and/or moisture-impacted building materials or contents may be present within the interior of the building.
Building 75—Milking Parlor and Offices	**Lead** ▪ Beige paint on exterior trim is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment **Mercury** ▪ Three (3) mercury-containing thermostats were observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed. **Mould** ▪ Water stained ceiling tiles with suspect mould were observed in various locations throughout.
Building 78—Roofed Compost Facility	**Lead** ▪ Lead is expected to be present in solder used in caulking on bell fittings for cast iron drainage pipes, and some electrical equipment.
Building 80—Pesticide Storage	**Mercury** ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 81—New Equipment Storage	**Lead** ▪ Yellow paint on bollards is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mercury** ▪ Mercury vapour may be present within high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Main Site
Building 82—Screen House	No hazardous building materials identified.
Building 83—Screen House	No hazardous building materials identified.
Building 84—Screen House	No hazardous building materials identified.
Building 85—Main Office/Lab Complex	**Lead** ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment **Mercury** ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed **Mould** ▪ Suspect mould was observed at the base of the wall in the first floor utility access corridor behind the poultry program lab (room 150) at two locations (approximately 3 square feet at each location) ▪ Suspect mould was observed at the base of the wall in the second floor utility access corridor behind the equipment room (room 219) (approximately 3 square feet).
Building 86—Fuel and Oil Tank Storage Building	No hazardous building materials identified.
Building 87—Fueling Station	**Mercury** ▪ Mercury vapour may be present within a high intensity discharge light on the exterior.
Building 88—Quail Barn	**Lead** ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ Approximately twenty-three (23) fluorescent lamp ballasts may contain PCBs. **Mercury** ▪ One (1) mercury-containing thermostat was observed ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed. **Mould** ▪ Moisture staining was observed on ceiling drywall in various locations throughout including around supply/return air ceiling vents.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Farm 2
Building 40—Residence	**Asbestos** ▪ Vinyl sheet flooring - beige pebble pattern, in the kitchen as a sub-layer is asbestos-containing ▪ Drywall joint compound throughout is asbestos-containing. **Lead** ▪ White paint on walls and ceilings in various locations throughout is lead-containing ▪ Pink paint on walls of room 4 (main floor southeast) is lead-containing ▪ Yellow paint on 2nd floor washroom walls is lead-containing ▪ White paint on 2nd floor hallway walls is lead-containing ▪ Grey paint on floors of room 7 (second floor southwest) is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mercury** ▪ One (1) mercury-containing thermostat was observed ▪ Mercury vapour may be present within fluorescent light tubes. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 41—Implement Shed	**Lead** ▪ White paint on storage area walls is lead-containing ▪ Lime green paint on workshop walls is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment.
Building 42—Pumphouse	**Lead** ▪ White paint on interior walls is lead-containing ▪ White paint on exterior walls is lead-containing ▪ Green paint on exterior trim is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment.
Building 49—Heifer Barn	**Lead** ▪ White paint on interior garage walls is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment.
Building 50—Piggery Storage	**Lead** ▪ White paint on exterior walls is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment.

Summary of Identified Hazardous Building Materials	
Building Name	**Identified Hazardous Building Materials**
	Farm 2
Building 67—Storage Garage	**Asbestos** ▪ Cement paneling is asbestos-containing. **Lead** ▪ White (green and orange layers) paint on remnant wall area is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mould** ▪ As the building is abandoned and collapsed, most surfaces were observed to be moist with suspected mould growth.
	Abbotsford (Clearbrook)
Building 001—Service Building	**Lead** ▪ White paint on exterior trim and doors is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **Mercury** ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior. **Equipment with Radioactive Components** ▪ Heat/smoke detection devices suspected to contain radioactive components were observed.
Building 002—Pump House	**Lead** ▪ White paint on exterior trim and door is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes.
Building 003 Implement Shed/Building 004 Machinery Shed	**Lead** ▪ White paint on exterior siding and doors is lead-containing ▪ Lead is expected to be present in solder used in copper domestic pipes, caulking on bell fittings for cast iron drainage pipes, and some electrical equipment. **PCBs** ▪ Four (4) fluorescent lamp ballasts may contain PCBs. **Mercury** ▪ Mercury vapour may be present within fluorescent light tubes and high intensity discharge lights on the exterior.

Building-by-building summaries of the identified hazardous building materials, as well as building-specific recommendations to address identified hazardous building materials in non-compliant conditions are provided in **Appendix B through Appendix D**. General findings and recommendations pertaining to hazardous building materials within the subject buildings are provided in **Section 5** and **Section 6** of this report.

A summary of "Class C" cost estimates for the following items are included in **Appendix E**:

- Abatement of identified asbestos-containing materials (ACMs) for buildings that are planned for continued operations and maintenance
- Abatement of identified ACMs and other hazardous building materials for buildings slated for demolition.

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1 INTRODUCTION

Stantec Consulting Ltd. (Stantec) was retained by Agriculture and Agri-Food Canada c/o Public Works and Government Services Canada (PWGSC) to conduct hazardous building materials assessments within 47 buildings (subject buildings) associated with the Pacific Agri-Food Research Centre, with locations in Agassiz and Abbotsford (Clearbrook), BC.

The objective of the project was to assess for the presence (or absence) of hazardous building materials within the subject buildings. The assessment was conducted to meet the requirements of the following:

- Canada Labour Code, Part II Occupational Health and Safety Regulations (Canada Labour Code)
- British Columbia's Occupational Health and Safety Regulation (BC Reg. 296/97).

The hazardous building materials considered included asbestos-containing materials (ACMs), lead-containing materials including lead-containing paints (LCPs), polychlorinated biphenyls (PCBs), mercury-containing items, ozone-depleting substances (ODSs), equipment with radioactive components (RACs) and suspected mould-impacted building materials.

Site work was completed within the subject buildings from September 17 through 25, 2012, by Zack Kranjec and Tiffany Waite, B.Sc., of Stantec.

2 BACKGROUND

Stantec understands that Agriculture and Agri-Food Canada is in the process of developing an Asbestos Management Plan (AMP) for their buildings and structures located at the Agassiz and Abbotsford (Cloverdale) sites, such that asbestos can be appropriately managed as buildings are disposed of (demolished), renovated, or operated and maintained..

Asbestos assessments (or "surveys") are integral to the AMP, as they provide the building-specific information pertaining to the location, extent and/or condition of ACMs such that they can be managed appropriately.

As such, Stantec was retained to conduct assessments of the subject buildings for asbestos in support of the overall development of Agriculture and Agri-Food Canada's AMP.

In addition to asbestos, other hazardous building materials including lead, PCBs, mercury, ODSs and RACs were commonly used during the construction era for many of the subject buildings, and mould can be found in buildings that have experienced moisture issues. As such, in addition to providing information in support of the development of an AMP, as a measure of diligence in identifying other potential health and safety liabilities, and as a cost saving measure due to the remote nature of many of the buildings, Agriculture and Agri-Food Canada/PWGSC requested that Stantec include other hazardous building materials in the scope of assessment activities.

3 SCOPE AND METHODOLOGY

Zack Kranjec and Tiffany Waite, B.Sc., of Stantec conducted visual assessments within the subject buildings from September 17 through 25, 2012. Site work was conducted in general accordance with the requirements of the Canada Labour Code and BC Reg. 296/97.

Mechanical systems, structures and finishes of the subject areas were visually examined to determine the suspected presence of ACMs, lead and LCPs, PCBs, mould, mercury, radioactive materials and ODSs. Where building materials were suspected but not confirmed to contain asbestos and/or LCPs, samples were collected for analysis to confirm or deny the presence of these hazardous materials. Based on analytical results, visually similar materials were referenced to specific analyzed samples to reduce the number of samples collected.

Additional background information and the methodology used for the determination of presence or absence of each specific hazardous material considered in this assessment are outlined in the following sections.

3.1 Asbestos

The common use of friable (materials which, when dry, can be easily crumbled or powdered by hand pressure) ACMs in construction generally ceased voluntarily in the mid-1970s but was only banned through legislation by the late 1980s. Friable asbestos was used in many building products, primarily high temperature insulations, spray-applied structural fireproofing, and a material called vermiculite that was commonly used as block wall insulation and may be contaminated with asbestos fibres. Asbestos was also used in many non-friable manufactured products such as floor tiles, ceiling tiles, Transite™ cement products, and various other construction materials. Some cement products currently used in the construction of buildings may still contain asbestos.

The presence of asbestos in federal workplaces, and pertaining to federally regulated workers is governed by the Canada Labour Code. The presence of asbestos in the workplace in British Columbia pertaining to provincially regulated workers is governed by BC Reg. 296/97. As both federally regulated workers and provincially regulated workers (e.g., contractors) are expected to carry out work activities within the subject buildings, and as the provincial regulations are generally more prescriptive pertaining to asbestos (and generally include the requirements noted in the Canada Labour Code), this assessment was conducted to meet the requirements of the BC Reg. 296/97.

According to the current version of BC Reg. 296/97, asbestos-containing material (ACM) means any material containing at least 0.5% asbestos, or vermiculite insulation with any asbestos.

Based on these criteria, samples of suspected ACMs were collected and submitted to EMSL Canada Inc. (EMSL) in Mississauga, Ontario for analysis of asbestos content using Polarized Light Microscopy (PLM) with dispersion staining, in accordance with the National Institute for Occupational Safety and Health (NIOSH) Analytical Method 9002, "Asbestos (bulk) by PLM".

Where samples were found to contain detectable concentrations of asbestos reported as "< 1%" through PLM analysis (and no asbestos was detected in additional samples of the same material, if applicable), supplemental analysis using 400 Point Count procedure via EPA 600/R-93/116 and/or EPA 600/M4-82-020 was conducted by EMSL to determine whether the concentration of asbestos present was greater or less than 0.5%.

EMSL analytical laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

A positive stop option was used during the laboratory analysis of the building materials suspected to contain asbestos. Multiple samples of visually similar material were collected and submitted for laboratory analysis. If the first sample of the set analyzed was identified to contain asbestos, further analysis of the subsequent samples was deemed to be unnecessary and not conducted.

3.1.1 Vermiculite Insulation

In addition to the above, samples of suspected asbestos-containing vermiculite insulation were collected from various attic spaces where this insulation material was present, and were submitted to Wes-Har Asbestos Analysis and Consulting Ltd. of Richmond, BC (Wes-Har) for analysis of asbestos content (presence/absence only) in accordance with the following:

- National Institute for Occupational Safety and Health (NIOSH) Analytical Method 9002 "Asbestos (bulk) by PLM" for fibrous/mineral components
- United States Environmental Protection Agency (USEPA) method 600/R-04/004 (January, 2004) "Research Method for Sampling and Analysis of Fibrous Amphibole in Vermiculite Attic Insulation".

Wes-Har is accredited through the American Industrial Hygiene Association's Bulk Asbestos Proficiency Analytical Testing (BAPAT) and Industrial Hygiene Proficiency Analytical Testing (IHPAT) programs.

Vermiculite samples were analysed for presence/absence of asbestos only (as opposed to analysis for percent weight) based on the current definition of ACM in British Columbia, which includes "vermiculite insulation with any asbestos". In addition, and from a federal standpoint, the following should be noted:

- The asbestos that is generally present in vermiculite insulating materials is friable, and is present as a contaminant of the product, not as a manufactured additive or ingredient. As such, if low concentrations of asbestos are detected in one discrete sample of vermiculite insulation, it is still possible that higher concentrations of friable asbestos fibres are present in the vermiculite insulation in other locations.
- The hazardous materials abatement industry, Health Canada, and WorkSafe BC all recommend that if disturbance to vermiculite insulation containing ANY concentration of asbestos fibres is required, that appropriate asbestos abatement precautions (including the use of proper personal protective equipment, containment and handling procedures, etc.) be employed.

As such, if asbestos is detected in vermiculite samples, this material is considered to be an ACM.

3.1.2 Asbestos Sampling Quality Assurance/Quality Control

Sampling activities pertaining to asbestos were conducted in accordance with Stantec's Safe Work Practices (SWPs), which take into account current provincial regulations pertaining to such work (i.e., sampling procedures, required number of samples, and laboratory analytical procedures).

Representative bulk samples were collected of accessible suspect ACMs in sufficient quantities for laboratory analyses. Suspect ACM samples were sealed in polyethylene zip-lock bags labeled with the sample number, suspect material description, and sample location. As part of sampling procedures, sampling tools were cleaned between sample collection events to avoid the potential for cross-contamination of samples.

Sample bags were compiled in order and placed into a single container accompanied with a Chain of Custody form outlining the project information, date, building location, number of samples, and sample description. Samples were submitted to the analytical laboratory in a sealed container via courier.

3.2 Lead

Lead may be used in its pure metallic form or combined chemically with other elements to form lead compounds. Metallic lead is used to make products such as electric storage batteries, ammunition, lead solder, radiation shields, pipes, and sheaths for electric cables. Metallic lead is sometimes combined with other metals such as copper, tin, and antimony as lead alloys for use in the manufacture of a variety of metal products. Lead is commonly found in buildings in the solder used on copper domestic pipes, in the caulking on bell fittings of cast iron drainage pipes and in electrical equipment.

The presence of lead-containing materials (other than paint) was assessed through visual means.

With respect to paint, the lead content of interior paint was limited to 0.5% by weight (5,000 parts per million, or "ppm") in 1976 under the federal *Hazardous Products Act*. Recently, the *Hazardous Products Act* reduced the criteria for surface coatings (including paint) to 600 mg/kg (600 ppm) to define them as "lead-containing" (this has since been reduced to 90 ppm). In addition, WorkSafe BC has compiled a manual titled "*Lead-Containing Paint and Coatings: Preventing Exposure in the Construction Industry*", (BC Lead Guideline) which defines a "lead-containing surface coating material" and sets out requirements for coatings with a lead content that exceeds 600 mg/kg (or 600 ppm). As such, Stantec will reference this value (600 ppm) in defining paints as "lead-containing".

Samples of suspected LCPs were collected from major paint applications, and were collected to substrate, where possible, in sufficient quantity to conduct analyses for total lead content. Samples collected were placed into separate, sealed, and labelled polyethylene bags, and submitted to EMSL for analyses of total lead content using Flame Atomic Absorption Spectrometry AAS (SW 846 3050B/7420).

EMSL's analytical laboratory is also accredited by the American Industrial Hygiene Association (AIHA) Environmental Lead Laboratory Approval Program.

3.3 Polychlorinated Biphenyls

PCBs were used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. In fluorescent fixtures, PCBs were usually found within the small capacitors inside the ballast that controls the lamp. The *Federal Chlorobiphenyls Regulation*, SOR/91-152, prohibited the use of PCBs in electrical equipment manufactured after July 1, 1980.

The presence of PCB-containing equipment was assessed through visual means.

With respect to fluorescent lamp ballasts, due to the risk of electrical shock associated with dismantling operating fixtures, fluorescent lamp ballasts were not removed to view identification numbers/ information. However, fluorescent lamp lenses and covers were removed to view ballast labels, in some instances, for comparison to the Environment Canada reference guide entitled "*Identification of Lamp Ballasts Containing PCBs, Report EPS 2/CC/2*", dated August 1991 (PCB Guide).

Based on this information and observations pertaining to lighting retro-fits and/or high-efficiency lighting that had been installed (where applicable), the total number of fluorescent lamp ballasts that may contain PCBs within the subject buildings was approximated.

3.4 Mercury

Mercury is commonly found in buildings as mercury vapour lighting, thermostats and/or thermometers with mercury-containing glass ampoules, electrical switches and can also be found in minor amounts in fluorescent lamp tubes and vapour bulbs and may be present in stable forms in adhesives. Exposure to mercury in federal workplaces is governed by the Canada Labour Code, while provincially it is governed by BC Reg. 296/97.

The presence of mercury and mercury-containing equipment was assessed through visual means.

3.5 Equipment Containing Radioactive Components

Radioactive components are listed under the current Federal *Transportation of Dangerous Goods Act* (TDG Act). Substances with a specific radioactivity greater than 70 kBq/kg are included under Class 7, Radioactive Materials within the TDG Act and must be transported in accordance with the provisions under the Act. The *Nuclear Safety and Control Act* (1997, c.9), Nuclear Substances and Radiation Devices Regulations (SOR/2000-207) states that radioactive substances that do not contain more than 185 kBq of americium 241 or where it is in a commercial or industrial facility, more than 740 kBq of americium 241 is considered an except radioactive source under the Act. These levels may be reached if more than 20 radioactive smoke detection devices are collected and stored together.

The presence of radioactive components and equipment containing radioactive components was assessed through visual means.

3.6 Mould

Moist building materials may provide suitable conditions for mould growth, and the removal of building materials impacted by mould growth may require workers with specific training and experience using work procedures that have been developed to protect workers and work areas from exposure to elevated concentrations of airborne mould.

The presence of suspect visible mould was assessed through visual means. Material observed with dark-colored staining and/or a textured and discolored appearance is described as "suspected mould". Mould identified visually is defined as "suspected mould" unless it is confirmed as mould by laboratory analysis.

3.6.1 Mould Reference Guidelines

With respect to mould and/or moisture, the assessment procedures utilized and abatement scope of work developed during this project were based on the recommendations provided in the documents listed below.

- Standard Construction Document CCA 82 "*mould guidelines for the Canadian construction industry*", Canadian Construction Association, 2004 (referred to as "CCA 82")
- "*Guidelines on Assessment and Remediation of Fungi in Indoor Environment*", New York City Department of Health, Bureau of Environmental & Occupational Disease Epidemiology, April 2000 (referred to as the "NYC Guidelines")
- "*Fungal Contamination in Public Buildings: Heath Effects and Investigation Methods*", Federal-Provincial Committee on Environmental and Occupational Health, 2004 (referred to as the "Health Canada Guide")
- "*Indoor Air Quality in Office Buildings: A Technical Guide*", Report of the Federal-Provincial Advisory Committee on Environmental and Occupational Health, 1995. (referred to as the "IAQ Guide")
- "*Bioaerosols: Assessment and Control*", American Conference of Governmental Industrial Hygienists (ACGIH), 1999 (referred to as the ACGIH Report).

4 ASSESSMENT LIMITATIONS

This report reflects the observations made within accessed areas of the subject buildings, and the results of analyses performed on specific materials sampled during the assessment. Analytical results reflect the sampled materials at the specific sample locations.

Due to safety considerations, access restrictions imposed by height or Agriculture and Agri-Food Canada, access to the following areas was not provided:

- The interior of Building 73 P.C.B Storage
- The interior of Building 74 Chemical Storage.

As such, limited comments, if any, will be provided regarding the presence, quantity or condition of hazardous building materials within the above-noted areas.

The limitations of this assessment pertaining to each of the considered hazardous building materials are outlined in the following sub-sections

4.1 Asbestos

Due to the limitations of sampling techniques, and the restrictions imposed through working in occupied and operational areas, the asbestos content of some materials could neither be confirmed nor denied within the subject buildings. Suspected ACMs that were not sampled include, but are not limited to, the following:

- Sub-grade materials
- Flooring material concealed beneath carpeting, ceramic tile, brickwork, hardwood flooring, and/or concealed beneath existing sub-floors
- Drywall and/or wall plaster materials concealed behind new and/or additional walls
- Woven tape inside duct connection joints
- Pipe straight-run and pipe elbow insulation within wall cavities or crawlspaces
- Insulation materials inside fire doors
- Loose-fill insulation (e.g., vermiculite) within sealed wall cavities
- Heating, ventilation and air conditioning (HVAC) units mechanical inner components or linings
- Heat protection materials inside mechanical installations and light fixtures.
- Electrical wire wrap.

If encountered during renovation, demolition or other activities, any suspected ACMs not identified within this report should be presumed to contain asbestos and handled as such until otherwise proven, through analytical testing.

4.2 Lead

Assessment for the presence of lead or lead-containing materials was visual in nature, and was conducted pertaining to readily visible surfaces within accessible spaces of the subject buildings only. The presence of lead or lead-containing materials in inaccessible areas not assessed includes, but is not limited to: ceiling spaces, wall cavities, crawlspaces, and buried materials.

With respect to paint, samples of suspected LCPs were collected within the subject buildings only from surfaces of major paint applications where visually different paint colours and/or types were identified. Although the surfaces where samples were collected may be covered with more than one coat of paint, the paint samples are described by the surface (visible) colour only.

Attempts were made to represent all layers of paint in the samples collected. As analytical results are referenced to the surface paint colour only, the lead content of all painted surfaces similar to that

represented by the surface paint colour will be presumed to be the same, regardless of differing sub-surface paints, if any.

4.3 Polychlorinated Biphenyls

Due to height restrictions and the risk of electrical shock in handling operational light fixtures, the ballasts present in the fixtures observed within the subject buildings were not removed for comparison to the PCB Guide. However, fluorescent light lenses and ballast covers were removed to view ballast labels.

Conclusions and recommendations regarding the presence of PCBs within the subject buildings are based on limited observations and information provided by Agriculture and Agri-Food Canada staff regarding lighting renovations and are presented to provide guidance regarding the likelihood that PCB-containing equipment is or is not present within the subject buildings. The exact extent and/or number of fluorescent lamp ballasts containing PCBs, if any, within the subject buildings will not be commented on.

4.4 Mercury

Visual assessment for the presence of mercury-containing equipment within the subject buildings was conducted in accessible areas only. The presence of mercury or mercury-containing equipment in inaccessible areas including, but not limited to ceiling spaces, wall cavities, and crawlspaces, or as internal parts of HVAC mechanisms, was not assessed.

4.5 Equipment Containing Radioactive Components

Visual assessment for the presence of radioactive components within the subject facility was conducted in accessible areas only.

The presence of radioactive components in inaccessible areas including, but not limited to, ceiling spaces, wall cavities and crawlspaces, or as internal parts of fire-detection systems that were not appropriately labeled, was not assessed.

4.6 Mould

Visual assessment for the presence of suspected visible mould and/or suitable conditions for mould growth (e.g., moist and/or water-stained building materials) were conducted in accessed areas of the subject buildings only. The assessment was non-intrusive in nature and included visual assessment of exposed surfaces only.

The conclusions made in this report provide description(s) of the potential source(s) of moisture within the subject buildings that may have led to suitable conditions for mould growth, only in those cases where potential source(s) of moisture were identified. These conclusions will not necessarily identify all sources of moisture leading to suitable conditions for mould growth within the subject buildings or within the impacted area(s).

This assessment does not constitute a building envelope/building systems assessment, which would include an intrusive investigation to assess the internal condition, potential moisture sources, and expected remaining service life of the various components and systems comprising the envelope of a building.

5 FINDINGS

A listing of the buildings assessed, which includes building number, building name, building status (e.g. for demolition; occupied; occasionally occupied), year built and area (square metres) is included in **Appendix A**, along with site plans of each area – Main Site, Farm 2 and Abbotsford (Clearbrook), which indicate the locations of each building.

The results of our assessment are provided on a building-by-building basis in the following appendices:

- **Appendix B**—buildings of the Main Site
- **Appendix C**—buildings of Farm 2
- **Appendix D**—buildings of the Abbotsford (Clearbrook) site.

Each of the above-noted appendices contains a separate sub-appendix for each of the buildings at that site. The sub-appendices are separated with a fly-page for each particular building, complete with a building photo. Each building-specific sub-appendix includes the following (where applicable):

- Separate sections with written summaries of findings pertaining to each hazardous building material, including the following:
  - Information regarding the building, including the reported intent for that particular building (e.g., demolition, renovation or continued operation and maintenance)
  - A listing of suspect materials observed
  - Tables including a summaries of the sample types, locations, and analytical results
  - Interpretations of observations and/or sample analytical results.
- Photographs of identified hazardous building materials
- Information pertaining to condition evaluation of identified hazardous building materials
- Building-specific recommendations pertaining to identified hazardous building materials based on the reported intent for that particular building (e.g., demolition, renovation or continued operation and maintenance)
- Floor plan drawings for the subject building, which include locations of the samples collected during this assessment, and locations of identified hazardous building materials (where practical)
- Copies of the Certificates of Analysis for samples analysed.

It should be noted that evaluation of condition of identified ACMs was conducted using terminology and classifications as outlined in the Public Works and Government Services Canada Asbestos Management Directive (DP 057, 1997-12-03), and considered the friability of the material

(terminology relating to how easily fibres can be released), condition (good, fair and poor) and accessibility of the material. With respect to classification of accessibility of identified ACMs, the following categories were used, as outlined in the Public Works and Government Services Canada Asbestos Management Directive (DP 057, 1997-12-03):

- Access (A)

  Areas of the building within reach (from floor level) of all building users. Includes areas such as gymnasiums, workshops, and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.

- Access (B)

  Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes: frequently entered pipe chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk, i.e., tops of equipment, mezzanines.

- Access (C) Exposed

  Areas of the building above 8'0" where use of a ladder is required to reach the ACM. Only refers to ACM materials that are exposed to view, from the floor or ladder, without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building.

- Access (C) Concealed

  Areas of the building which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawl spaces, attic spaces, etc. Observations are limited to the extent visible from the access points.

- Access (D)

  Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc., where demolition of the ceiling, wall or equipment, etc., is required to reach the ACM. Evaluation of condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine the materials in Access D.

6 GENERAL RECOMMENDATIONS

Building-specific recommendations pertaining to the identified hazardous building materials that require action are provided in **Appendices B through D**. General recommendations pertaining to management of identified hazardous building materials in good condition are provided below.

6.1 Asbestos

Identified ACMs in good condition as listed in **Appendices B through D** can be managed in place in accordance with the Agriculture and Agri-Food Canada Asbestos Management Plan, based on the limited potential for damage to these materials and/or release of airborne asbestos fibres.

If renovation activities are to impact identified ACMs, these materials should be managed and handled in accordance with the requirements of the BC Reg. 296/97, and will require the involvement of a qualified, licensed asbestos abatement contractor.

Suspected ACMs deemed visually similar to the ACMs identified in this report should be considered asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

If encountered during renovation and/or demolition activities, any suspected ACMs not accessible and/or identified during this assessment should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

Ensure asbestos containing waste is handled, stored, and disposed of in accordance with the requirements of the *Federal Transportation of Dangerous Goods Regulation* and the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88).

6.2 Lead

Identified LCPs and other lead-containing materials in good condition can be managed in place. No action is currently required.

If LCPs or other lead-containing materials are to be disturbed and/or removed during renovation or other activities, ensure compliance with the following:

- The occupational exposure control requirements of the Canada Labour Code and BC Reg. 296/97
- The provisions of the BC Lead Guideline
- The disposal requirements of the BC Reg. 63/88
- The transportation requirements of the Federal Transportation of Dangerous Goods Regulation.

Corrective action or remedial work on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust.

6.2.1 Lead Leachate

As indicated in the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88), lead waste may be considered a toxic leachate (and require special disposal) if lead is in a dispersible form and its leachate contains greater than 5.0 milligrams per litre (mg/L) lead.

Based on the above, for the buildings scheduled for demolition, bulk samples should be collected from the building materials that are destined for landfill during demolition and are coated with identified LCPs. Samples should be submitted for analysis (typically using *Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)*, described in US EPA Reg. 40CFR261 (Method EPA 200.8), Appendix II) prior to demolition activities, to determine which materials, if any, may potentially create waste that would be considered leachable for lead, and may require alternative landfill disposal.

6.3 Polychlorinated Biphenyls

Fluorescent lamp ballasts that may contain PCBs can be managed in place, where these items are operating and in good condition. No further action is currently required until such time that renovation or demolition activities are to be conducted, or until 2025, when PCB-containing items will require removal and disposal.

As fluorescent lamp ballasts may contain PCBs, if these items are removed from service, they should be assessed in reference to the PCB Guide.

If PCB-containing items are identified and require removal, they should be handled, transported, stored and disposed of according to the *Federal Transportation of Dangerous Goods Regulation,* BC Reg. 63/88, and the *PCB Regulations* (SOR/2008-273).

6.4 Mercury

Identified mercury-containing materials can be managed in place. No further action is currently required.

If mercury-containing materials (e.g., thermostats, fluorescent light bulbs, HID lighting) are to be removed from service, ensure all mercury waste is handled, stored and disposed of in accordance with the requirements of the requirements of BC Reg. 63/88 and the *Transportation of Dangerous Goods Regulation*.

6.5 Equipment Containing Radioactive Components

Radioactive components as part of the fire/smoke detection systems can be managed in place. No further action is currently necessary.

As it could not be determined whether radioactive components were present in the heat/smoke detectors, caution should be taken and the heat/smoke detectors should be handled as if they contain radioactive components, unless additional information (e.g., labels) proves otherwise.

If radioactive components are identified for removal, these items should be transported and disposed of in accordance with the following:

- The Federal *Transportation of Dangerous Goods Act*
- The *Nuclear Safety and Control Act* (1997, c.9), Nuclear Substances and Radiation Devices Regulations (SOR/2000-207).

6.6 Mould

While there are few definitive guidelines on the interpretation of laboratory results for mould analysis, documents published by Health Canada, Ontario Ministry of Health, American Industrial Hygiene Association (AIHA), American Conference of Governmental Industrial Hygienists (ACGIH) and others, provide guidance for interpreting the results of mould investigations. The *Health Canada Guide* states that:

> *"Identifiable promoters of fungal growth require correction, and any visible fungi require removal"*

As the most controllable promoter of fungal growth is moisture, buildings should be managed to minimize moisture ingress or moisture impacts to building materials that are not intended to be wetted.

7 COST ESTIMATES FOR ABATEMENT

As requested, Stantec obtained cost estimates for abatement of the following through providing a summary of materials and conducting a walkthrough with a hazardous materials abatement contractor:

- Abatement of identified asbestos-containing materials (ACMs) for buildings that are planned for continued operations and maintenance.
- Abatement of identified ACMs and other hazardous building materials for buildings slated for demolition.

The cost estimates (and associated limitations and restrictions) provided by the contractor are summarized in the letter attached in **Appendix E**.

8 CLOSURE

This report has been prepared by Stantec Consulting Ltd. for the sole benefit of Agriculture and Agri-Food Canada c/o Public Works and Government Services Canada. This report may not be relied upon by any other person or entity without the express written consent of Stantec Consulting Ltd., Agriculture and Agri-Food Canada and Public Works and Government Services Canada.

Any use that a third party makes of this report, or any reliance on decisions to be made based on it, is the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The conclusions presented represent the best judgment of the assessor based on current environmental standards and the site conditions observed on the date cited within this report. This report is based on, and limited by, circumstances and conditions stated herein, and on information available at the time of preparation of the report. Due to the limited nature of the investigation and the limited data available, Stantec Consulting Ltd. cannot warrant against undiscovered

environmental liabilities. It is possible that additional, concealed hazardous materials may become evident during renovation and/or demolition activities within the subject buildings.

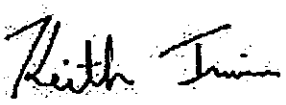
If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provided herein.

We trust that the report meets your current requirements. Should you have any questions or concerns regarding the above, please do not hesitate to contact the undersigned.

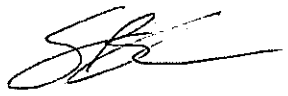
Respectfully submitted,

Stantec Consulting Ltd.

Reviewed by:



Keith Irwin Dipl. Tech.
Environmental Technologist



Sean Brigden, B.Sc., P.B.Dipl.
Project Manager

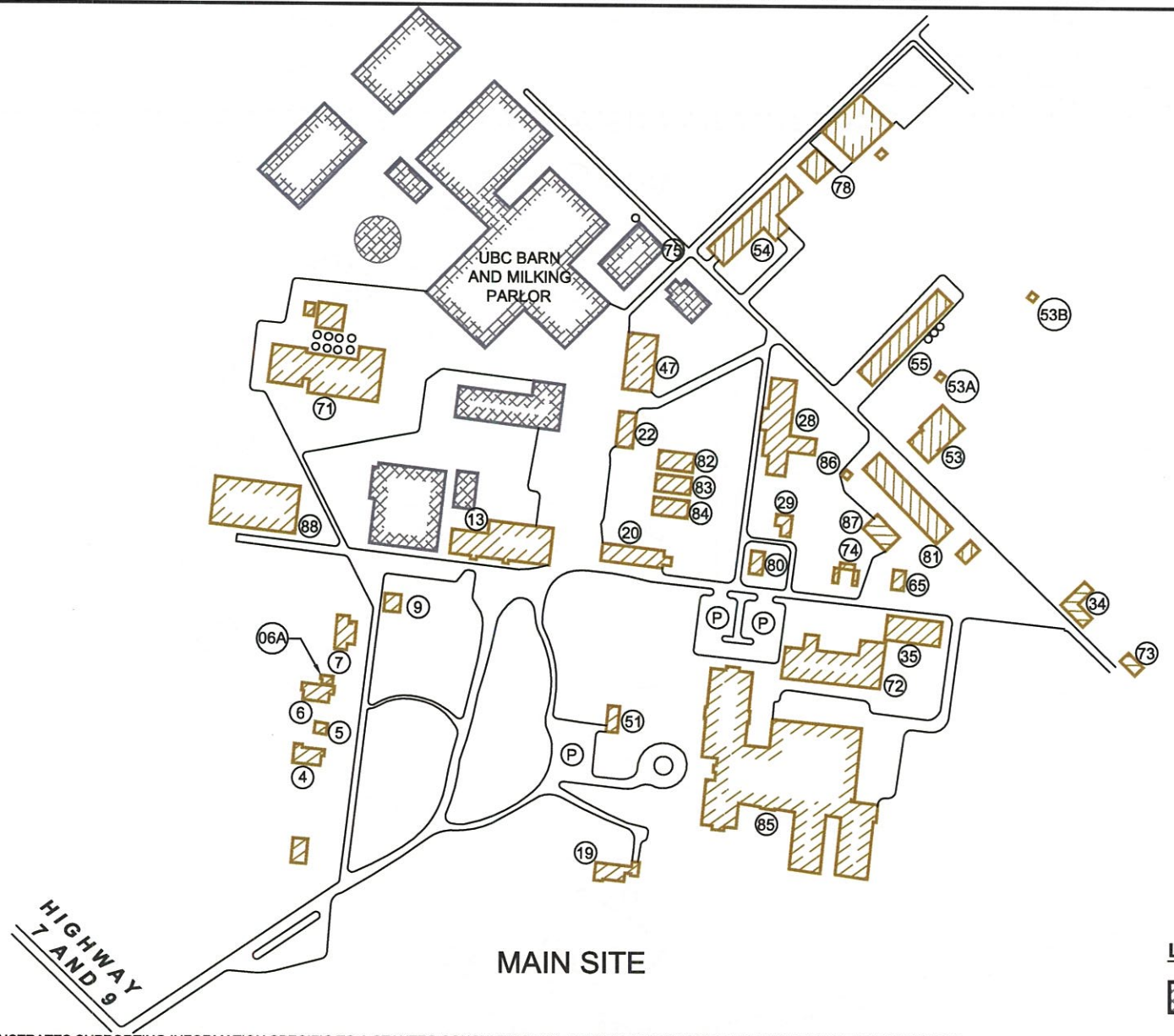
KI/SB/pf

APPENDIX A

Building List and Site Plans

Building Number/ Sub-Appendix	Building Name	Building Status	Year Built	Area (Square Metres)
Appendix B	**Main Site**			
4	RESIDENCE	For Demolition	1924	279.45
5	2 CAR GARAGE	For Demolition	1952	37.16
6	RESIDENCE	For Demolition	1947	279.45
06A	GARAGE	For Demolition	1892	22.3
7	RESIDENCE	For Demolition	1915	275.92
9	2 CAR GARAGE	For Demolition	1950	39.11
13	HERITAGE BARN	Occasionally Occupied	1892	2222.98
19	RESIDENCE	Occupied	1955	359.53
20	CARPENTER SHOP	Occupied	1920	657.7
22	IMPLEMENT SHED	Occasionally Occupied	1954	181.35
28	POULTRY HOUSE AND OFFICES	Occupied	1950	1150.14
29	POULTRY HATCHERY	Occupied	1921	171.87
34	FORAGE DRYERS-LAB	Occupied	1953	122.63
35	STORAGE (sheep barn)	Occasionally Occupied	1916	452.6
47	MACHINE SHOP/MECHANIC SHOP	Occupied	1958	464.52
51	PICNIC SHELTER	Occasionally Occupied	1955	47.57
53	WATER SUPPLY	For Demolition	1968	396.42
53A	WELL 1	For Demolition	1968	7.9
53B	WELL 2	For Demolition	1968	7.9
54	POULTRY CAGE HOUSE	Occupied	1967	591.61
55	POULTRY BARN	Occupied		940
65	METAL STORAGE SHED (from prison)	Occasionally Occupied	1975	54.2
71	FEEDMILL LAB	Occupied	1986	1289
72	NEW GREENHOUSE	Occupied	1988	972
73	P.C.B. STORAGE	Occasionally Occupied	1988	15.3
74	CHEMICAL STORAGE	Occasionally Occupied	1992	60.9
75	MILKING PARLOR AND OFFICES	For Demolition	1990	562
78	ROOFED COMPOST FACILITY	Occasionally Occupied	1995	847.8
80	PESTICIDE STORAGE	Occupied	1996	59
81	NEW EQUIPMENT STORAGE	Occasionally Occupied	2000	731

Building Number/ Sub-Appendix	Building Name	Building Status	Year Built	Area (Square Metres)
Appendix B	**Main Site (cont'd)**			
82	SCREEN HOUSE	Occasionally Occupied	1999	167
83	SCREEN HOUSE	Occasionally Occupied	1999	167
84	SCREEN HOUSE	Occasionally Occupied	1999	167
85	MAIN OFFICE/LAB COMPLEX	Occupied	2001	6768
86	FUEL AND OIL TANK STORAGE BUILDING	Occasionally Occupied	2006	9.6
87	FUELING STATION	Occasionally Occupied	2005	160
88	QUAIL BARN	Occupied		1076
Appendix C	**Farm 2**			
40	RESIDENCE	For Demolition	1901	241.18
41	IMPLEMENT SHED	For Demolition	1900	122.63
42	PUMPHOUSE	Occasionally Occupied	1958	25.36
49	HEIFER BARN	UBC	1960	135.27
50	PIGGERY STORAGE	Occasionally Occupied	1915	148.64
67	STORAGE GARAGE	FALLEN DOWN	1963	422.4
Appendix D	**Abbotsford (Clearbrook)**			
001	SERVICE BUILDING		1988	94
002	PUMP HOUSE		1959	14.31
003	IMPLEMENT SHED		1965	173.91
004	MACHINERY SHED		1977	111.48



NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

SITE PLAN

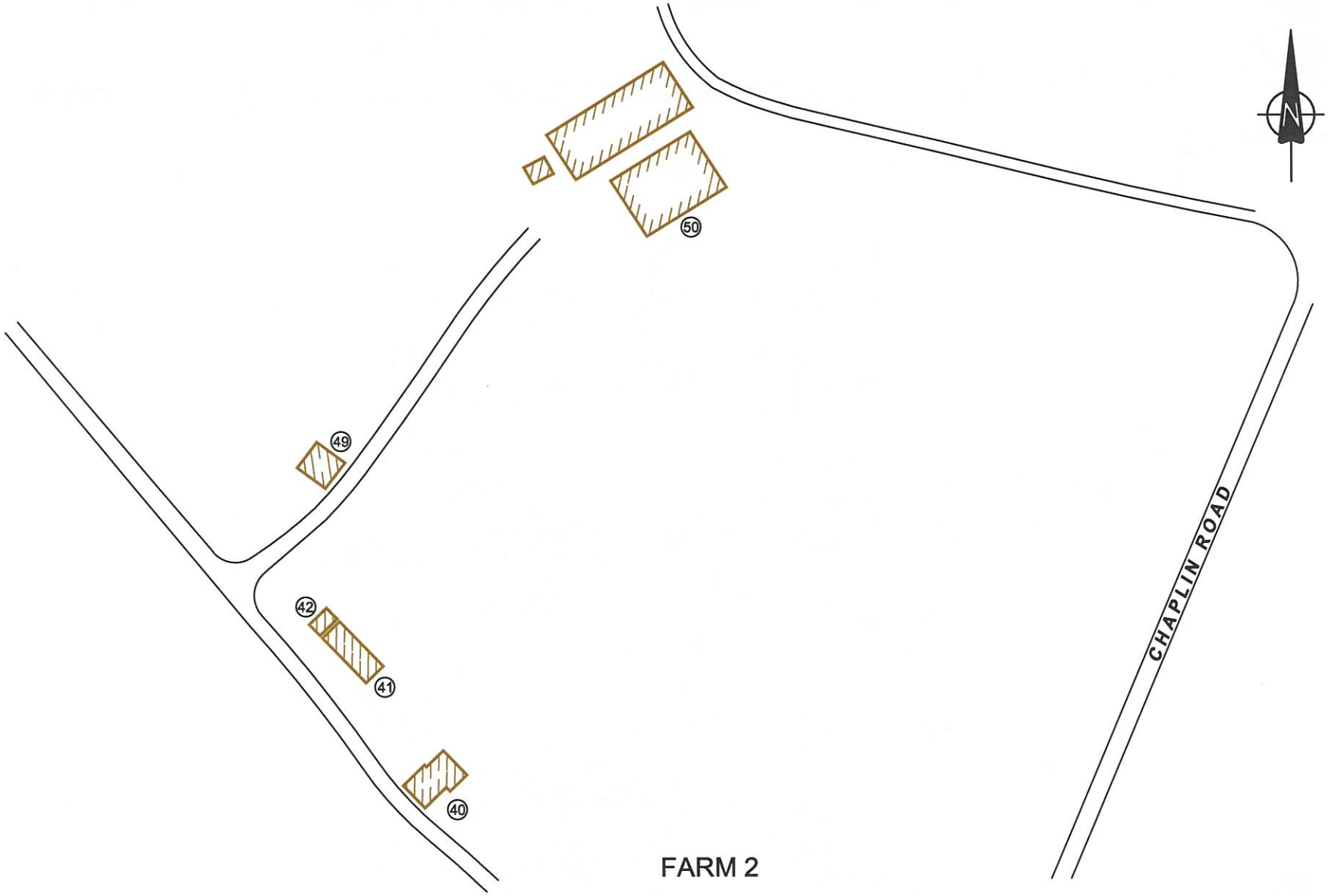
PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	13/01/05
Dwn. By:	CD CS SL2013010040
App'd By:	SB

Dwg. No.: P-1

Stantec



NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

SITE PLAN

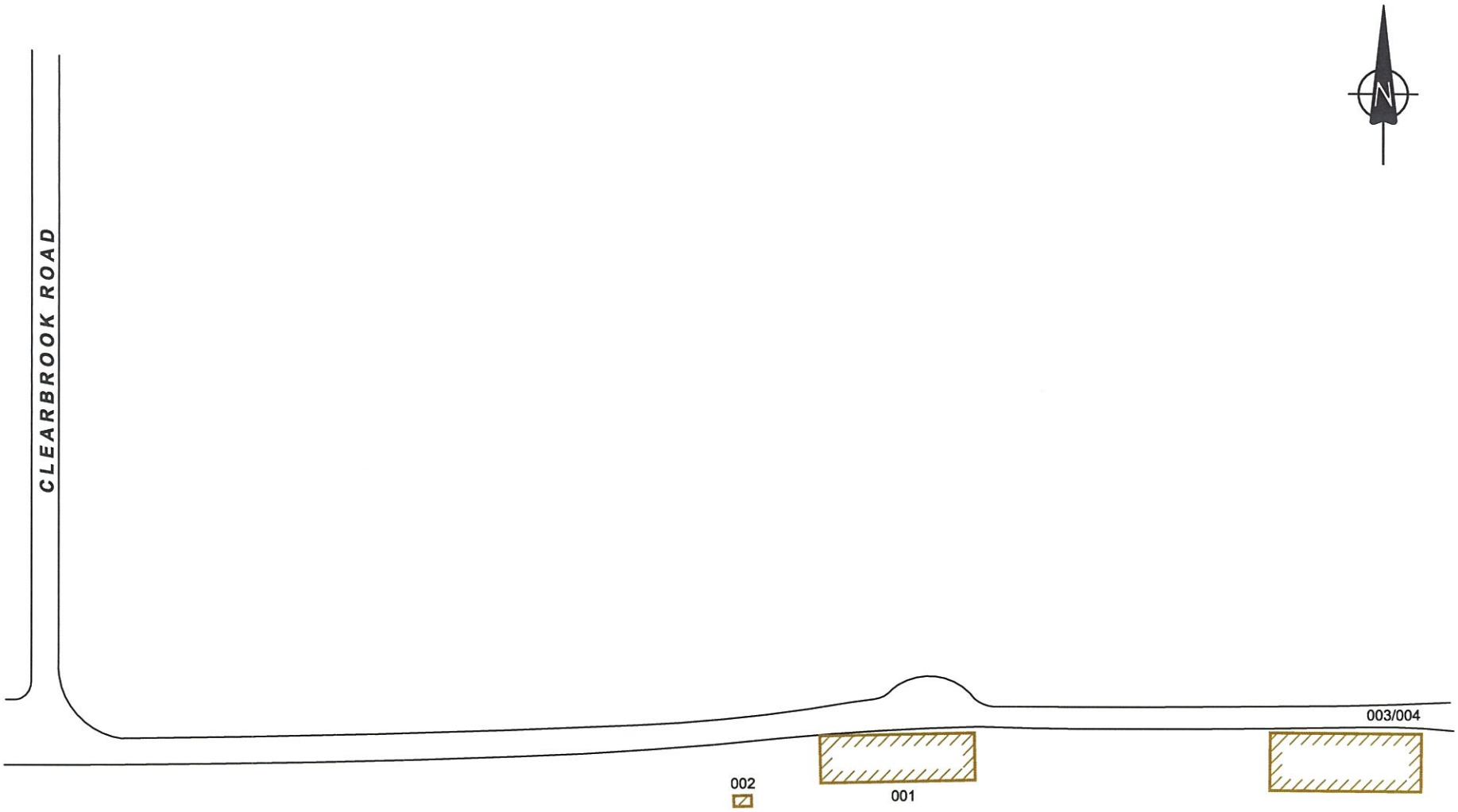
PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	13/01/05
Dwn. By:	CD CS SL2013010041
App'd By:	SB

Dwg. No.: P-2

Stantec



ABBOTSFORD FORD (CLEARBROOK)

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

SITE PLAN

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	13/01/05
Dwn. By:	CD CS SL2013010042
App'd By:	SB

Dwg. No.: P-3

Stantec

APPENDIX B

Main Site

MAIN CENTER

Building 6 – Residence

One Team. Infinite Solutions.

Stantec

5.0 FINDINGS – BUILDING 6 RESIDENCE

Building 6 Residence was reportedly constructed in 1947.

Stantec understands that the plan for Building 6 Residence is demolition.

The results of the assessment for each of the considered hazardous materials within Building 6 Residence are provided in the following sub-sections.

Floor plan drawings for Building 6 Residence, which include locations of the samples collected during this assessment, and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.1 Asbestos

Stantec identified and sampled various suspected ACMs, including the following:

- Drywall joint compound
- Sheet flooring
- Floor tiles
- Floor felt underlay
- Wall plaster
- Brick mortor
- Fire stop material

37 samples of the above-noted suspected ACMs were collected and submitted to EMSL for analysis of asbestos content and nature. A summary of the sample types, locations and analytical results is presented in Table 6-5.1.1, below. Copies of the certificates of analysis provided by EMSL for the suspected ACM samples submitted are attached at the end of this Appendix.

It should be noted that several bulk samples of floor tile and sheet flooring were further separated into layers during laboratory analysis.

Table 6-5.1.1: Suspected ACM Sample Collection and Analysis Summary
Building 6 Residence
Pacific Agri-Food Research Centre (Main Centre)

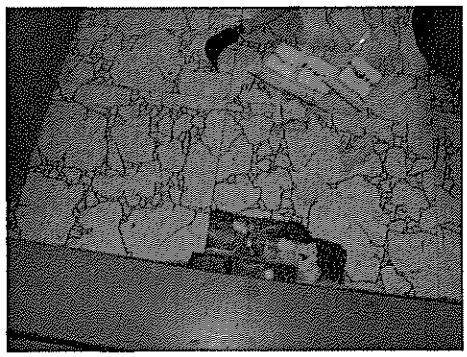
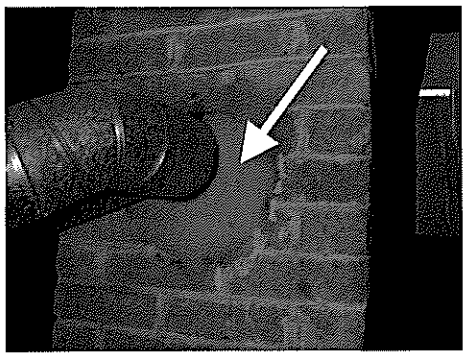
Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-6-DJC-01A	Drywall joint compound	2nd floor bedroom 4	None Detected
A-6-DJC-01B	Drywall joint compound	2nd floor	None Detected
A-6-DJC-01C	Drywall joint compound	Upper main floor washroom 2	None Detected
A-6-DJC-01D	Drywall joint compound	Upper main floor washroom 2	None Detected

Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-6-DJC-01E	Drywall joint compound	Upper main floor washroom 2	None Detected
A-6-DJC-02A	Drywall joint compound	Upper main floor washroom 1	None Detected
A-6-DJC-02B	Drywall joint compound	Laundry room	None Detected
A-6-DJC-02C	Drywall joint compound	Back porch	None Detected
A-6-SF-01A	Sheet flooring Brown and white pentagon pattern	Back porch	None Detected
A-6-SF-01B	Sheet flooring Brown and white pentagon pattern	Back porch	None Detected
A-6-SF-01C	Sheet flooring Brown and white pentagon pattern	Back porch	None Detected
A-6-SF-02A	Sheet flooring Beige and cream specks	Upper main floor dining room	None Detected
A-6-SF-02B	Sheet flooring Beige and cream specks	Upper main floor dining room	None Detected
A-6-SF-02C	Sheet flooring Beige and cream specks	Upper main floor dining room	None Detected
A-6-SF-03A	**Sheet flooring Beige and cream pebble pattern**	**Upper main floor dining room (2nd layer)**	**20% Chrysotile**
A-6-SF-03B	**Sheet flooring Beige and cream pebble pattern**	**Upper main floor dining room (2nd layer)**	**Stop Positive (Not Analyzed)**
A-6-SF-03C	**Sheet flooring Beige and cream pebble pattern**	**Upper main floor dining room (2nd layer)**	**Stop Positive (Not Analyzed)**
A-6-SF-04A	Sheet flooring Snowflake pattern	Upper main floor washroom 2	None Detected
A-6-SF-04B	Sheet flooring Snowflake pattern	Upper main floor washroom 2	None Detected
A-6-SF-04C	Sheet flooring Snowflake pattern	Upper main floor washroom 2	None Detected
A-6-FT-01A	**Floor tile Beige and tan faux stonework pattern**	**2nd floor bedroom 4**	**8% Chrysotile**
A-6-FT-01A	Floor tile mastic Beige and tan faux stonework pattern	2nd floor bedroom 4	None Detected

Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-6-FT-01B	**Floor tile Beige and tan faux stonework pattern**	**2nd floor bedroom 4**	**Stop Positive (Not Analyzed)**
A-6-FT-01B	Floor tile mastic Beige and tan faux stonework pattern	2nd floor bedroom 4	None Detected
A-6-FT-01C	**Floor tile Beige and tan faux stonework pattern**	**2nd floor bedroom 4**	**Stop Positive (Not Analyzed)**
A-6-FT-01C	Floor tile mastic Beige and tan faux stonework pattern	2nd floor bedroom 4	None Detected
A-6-PL-01A	Wall plaster	Upper main floor dining room	None Detected
A-6-PL-01B	Wall plaster	2nd floor stairwell	None Detected
A-6-PL-01C	Wall plaster	Upper main floor living room	None Detected
A-6-PL-01D	Wall plaster	Upper main floor kitchen	None Detected
A-6-PL-01E	Wall plaster	Upper main floor bedroom 1	None Detected
A-6-FF-01A	Floor felt underlay Black	2nd floor bedroom 3	None Detected
A-6-FF-01B	Floor felt underlay Black	2nd floor bedroom 3	None Detected
A-6-FF-01C	Floor felt underlay Black	2nd floor bedroom 3	None Detected
A-6-FS-01A	**Fire stop Grey colour**	**Basement**	**8% Chrysotile**
A-6-FS-01B	**Fire stop Grey colour**	**Basement**	**Stop Positive (Not Analyzed)**
A-6-FS-01C	**Fire stop Grey colour**	**Basement**	**Stop Positive (Not Analyzed)**
A-6-BM-01A	Brick mortor Light grey colour	Basement	None Detected
A-6-BM-01B	Brick mortor Light grey colour	Basement	None Detected
A-6-BM-01C	Brick mortor Light grey colour	Basement	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the materials presented in Table 6-5.1.2, below were identified as ACMs.

Table 6-5.1.2: Summary of Identified ACMs Building 6 Residence Pacific Agri-Food Research Centre (Main Centre)

Identified ACM Description and Condition Information	Photo
Sheet flooring, beige and cream pebble pattern – present within the upper main floor dining room and presumed to be present throughout upper main floor as a sub-layer of flooring. Friability: Friable Condition: Good Access: Throughout upper main floor - A	
Floor tile (12"x12" size) – present within second floor bedroom 4 Friability: Non-friable Condition: Good Access: Room 4 – A	
Fire stop – present within the basement where the furnace exhaust leads into the chimney Friability: Non-friable Condition: Good Access: Basement – A	

5.2 Lead

Lead is expected to be present in the following materials:

- Solder used on copper domestic pipes
- Caulking on bell fittings for cast iron drainage pipes
- Electrical equipment (i.e. batteries for emergency lighting/signage).

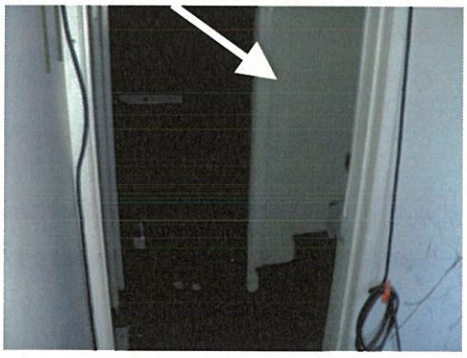
With respect to paint, three (3) paint chip samples were obtained, where suspected LCPs were observed. A summary of the sample types, locations and analytical results is presented in Table 6-5.2.1, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

Table 6-5.2.1: Suspected LCP Sample Collection and Analysis Summary
Building 6 Residence
Pacific Agri-Food Research Centre (Main Centre)

Sample No.	Sample Location	Sample Colour	Lab Result (ppm)	Lead Containing (Yes/No)
P-6-01	Lower main floor stairwell walls	White	1,800	Yes
P-6-02	Lower main floor stairwell floors	Grey	32,000	Yes
P-6-03	Exterior of residence	White	22,000	Yes

Based on our observations and on our interpretations of suspected LCP sample analytical results, the materials presented in Table 6-5.2.2, below were identified as LCPs.

Table 6-5.2.2: Summary of Identified LCPs
Building 6 Residence
Pacific Agri-Food Research Centre (Main Centre)

Identified LCP Description	Photo
White colour paint on interior walls. This paint was observed to be in good condition (not bubbling, flaking or peeling).	

Identified LCP Description	Photo
Grey colour paint on lower floor stairwell floor. With the exception of being worn down from foot traffic, this paint was observed to be in good condition (not bubbling, flaking or peeling).	
White colour paint on the exterior of the residence. This paint was observed to be in good condition (not bubbling, flaking or peeling).	

5.3 Polychlorinated Biphenyls

One (1) fluorescent light fixture was observed. As low voltage light tubes were observed in the fluorescent light fixture, the ballast within the fluorescent light fixture is not expected to contain PCBs.

5.4 Mercury

One (1) mercury-containing wall-mounted thermostat was observed.

In addition to the above, mercury vapour may be present within fluorescent light tubes.

5.5 Equipment with Radioactive Components

Heat/smoke detection devices suspected to contain radioactive components were observed.

5.6 Mould

No suspect mould was observed.

6.0 RECOMMENDATIONS TO ADDRESS IDENTIFIED ISSUES – BUILDING 6 RESIDENCE

The recommendations pertaining to those hazardous building materials identified to be in non-compliant condition within Building 6 Residence are provided in the following sub-sections. General recommendations pertaining to managing identified hazardous building materials in good condition are provided in the main body of this report.

6.1 Asbestos

ACMs identified within the building as listed in Table 6-5.1.2 should be removed and disposed of in accordance with the requirements of BC Reg. 296/97 prior to demolition activities that may impact them.

If materials that are visually similar to identified ACMs are discovered within the building in locations not outlined in this report, these materials should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

If encountered during demolition activities, any suspected ACMs not accessible during this assessment should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

Ensure asbestos containing waste is handled, stored, and disposed of in accordance with the requirements of the *Federal Transportation of Dangerous Goods Regulation* and the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88).

6.2 Lead

For LCPs and other lead-containing materials identified within the building that are to be disturbed and/or removed, ensure compliance with the following:

- The occupational exposure control requirements of BC Reg. 296/97 including the provisions of the BC Lead Guideline.
- The disposal requirements of the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88).
- The transportation requirements of the *Federal Transportation of Dangerous Goods Regulation*.

Corrective action or remedial work on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). Airborne lead dust or fumes should not exceed the BC Reg. 296/97 8-hour Occupational Exposure Limit (OEL) of 0.05 milligram per cubic metre (mg/m^3) during the removal of paints and products containing any concentration of lead. The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust.

6.3 Polychlorinated Biphenyls

No PCB-containing items were identified. No specific recommendations have been developed.

6.4 Mercury

For mercury-containing materials (e.g., thermostats, thermometers, fluorescent light bulbs) that are to be removed, ensure all mercury waste is handled, stored and disposed of in accordance with the requirements of the BC Reg. 63/88 and the *Federal Transportation of Dangerous Goods Regulation.*

6.5 Equipment with Radioactive Components

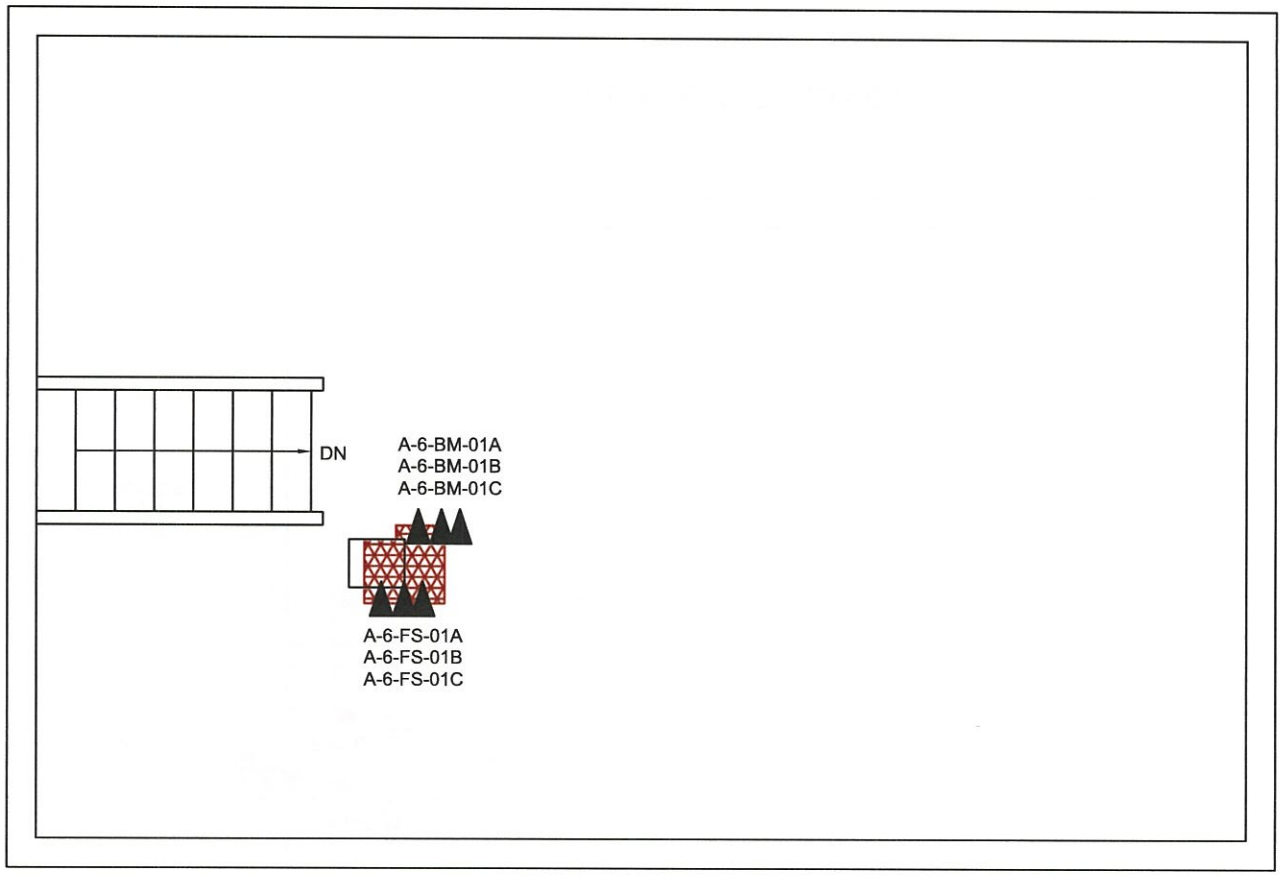
As it could not be determined whether radioactive components were present in the smoke detectors, caution should be taken and the smoke detectors should be handled as if they contain radioactive components, unless additional information (e.g., labels) proves otherwise.

For identified radioactive components that require removal, these items should be transported and disposed of in accordance with the following:

- The *Federal Transportation of Dangerous Goods Act*
- *The Nuclear Safety and Control Act (1997, c.9), Nuclear Substances and Radiation Devices Regulations (SOR/2000-207*

6.6 Mould

No suspect mould was observed. No specific recommendations have been developed.



BASEMENT

LEGEND

BULK SAMPLE

ASBESTOS-CONTAINING FIRE STOP ON THE CHIMNEY AT THE FURNACE EXHAUST

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 6 RESIDENCE

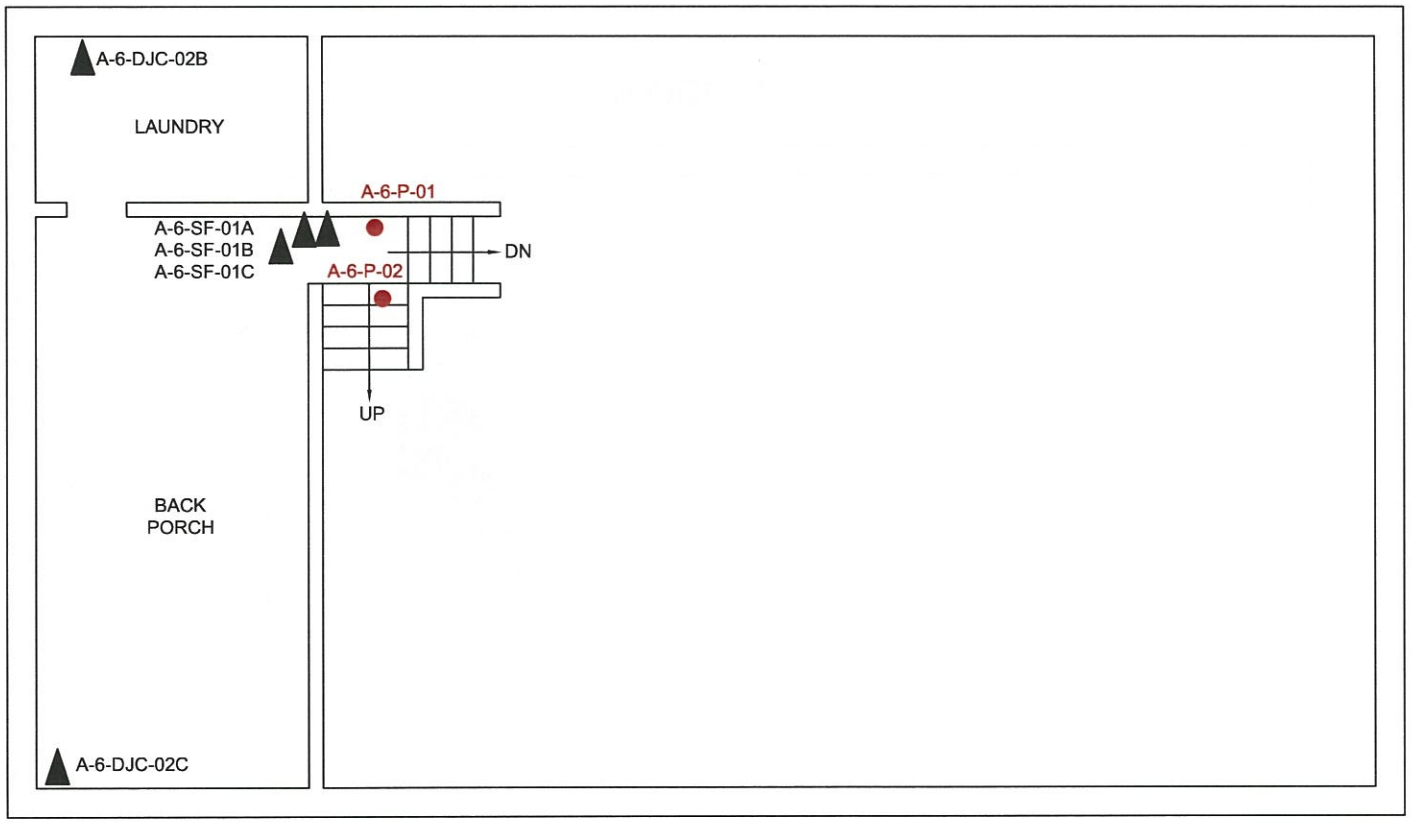
PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/11/22
Dwn. By:	CD VM SL2012110306
App'd By:	SB

Dwg. No.: 1

Stantec



MAIN FLOOR - LOWER LEVEL

LEGEND

- BULK SAMPLE
- PAINT CHIP SAMPLE

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FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 6 RESIDENCE

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/12/04
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App'd By:	SB

Dwg. No.: 2

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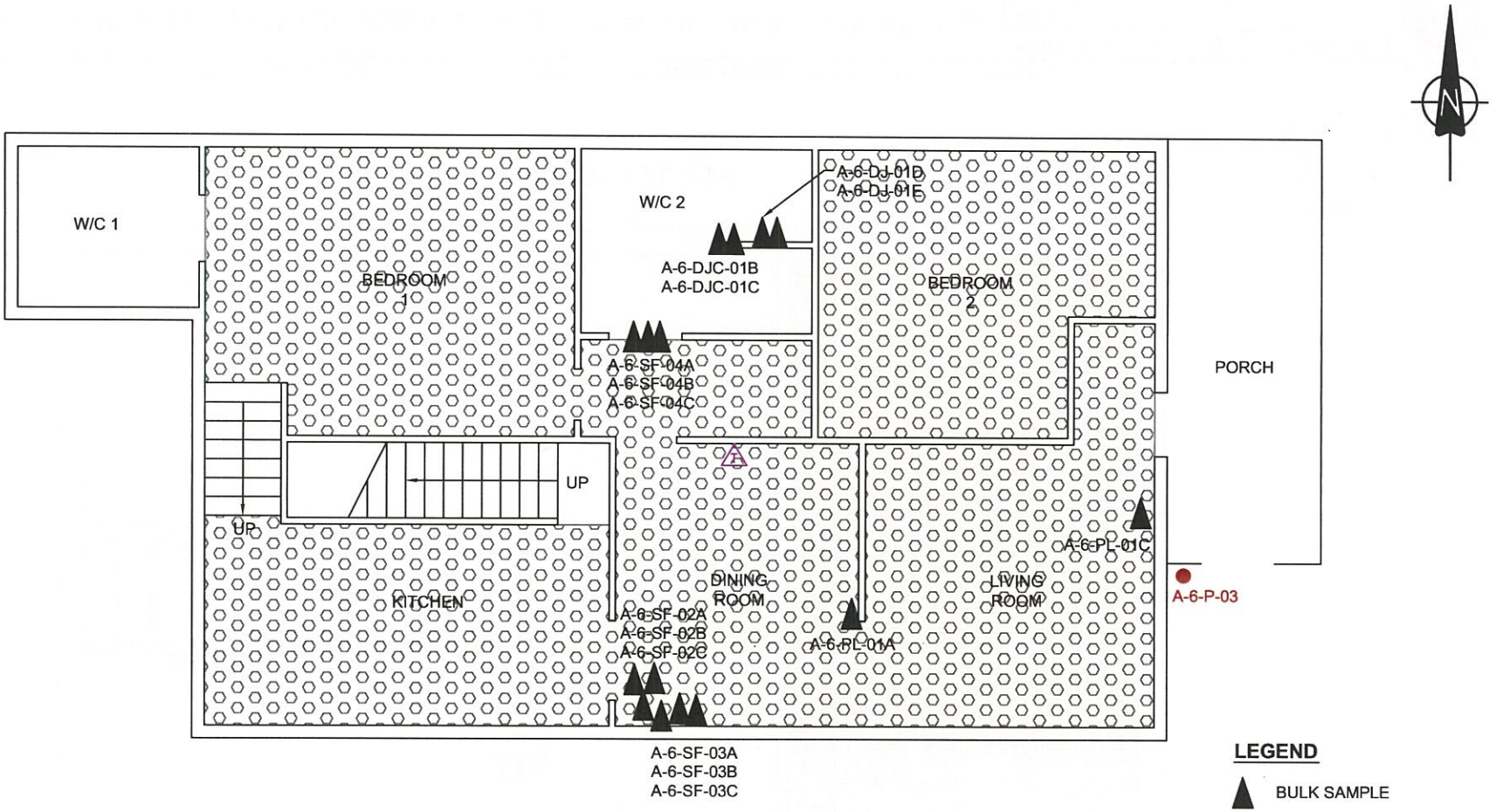

MAIN FLOOR - UPPER LEVEL

LEGEND

- BULK SAMPLE
- PAINT CHIP SAMPLE
- ASBESTOS-CONTAINING SHEET FLOORING (PRESENT AS A SUB-LAYER OF FLOORING BENEATH EXISTING SHEET FLOORING)
- MERCURY-CONTAINING THERMOSTAT

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 6 RESIDENCE

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/12/04
Dwn. By:	CD VM/DM SL2012120025
App'd By:	SB

Dwg. No.: 3

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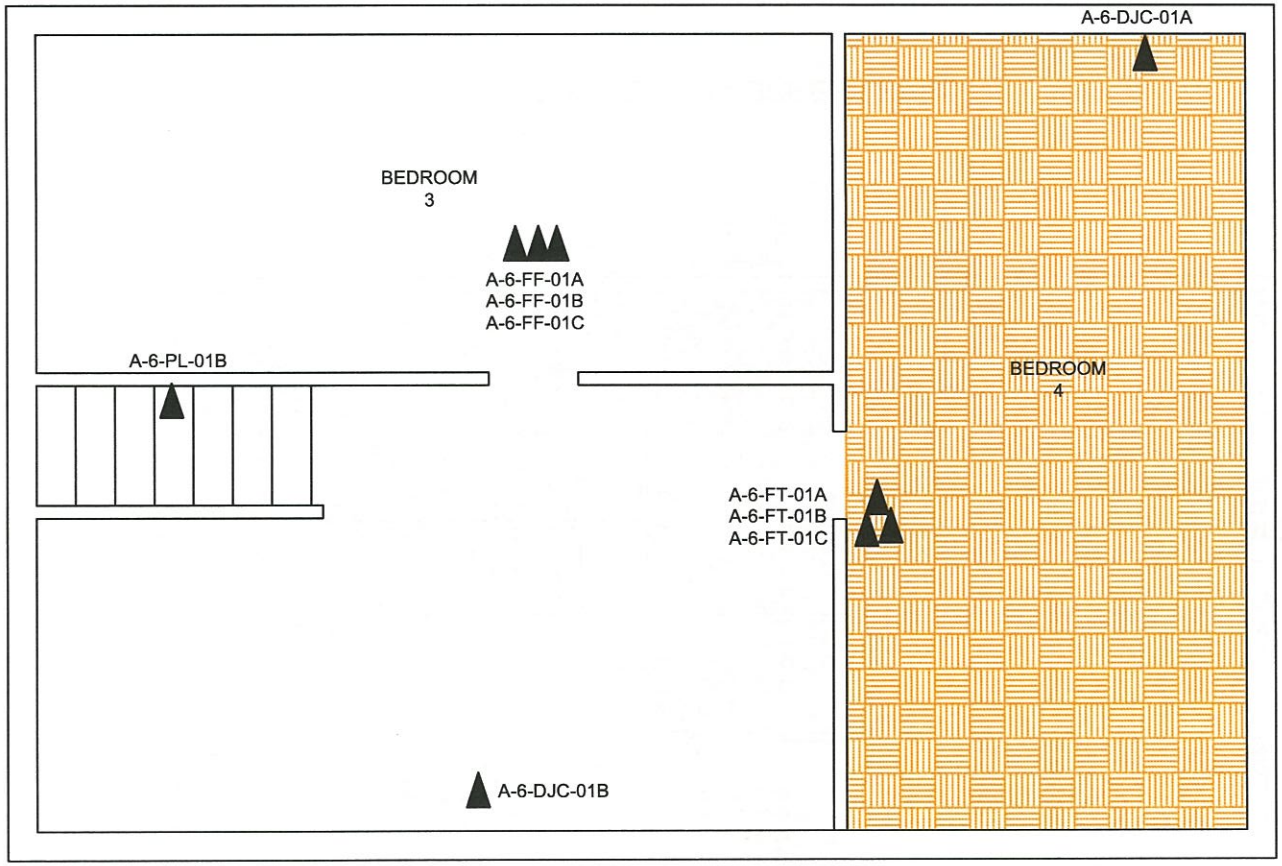

SECOND FLOOR

LEGEND

BULK SAMPLE

ASBESTOS-CONTAINING FLOOR TILES

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FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 6 RESIDENCE

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

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Received:	10/09/12 11:11 AM
Analysis Date:	10/11/2012
Collected:	

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**% Non-Fibrous**		**% Type**
A-6-DJC-01A-Drywall Joint Compound *551204592-0001*	2nd floor bedroom 4 - drywall joint compound	Gray/White Fibrous Homogeneous	8%	Cellulose	92%	Non-fibrous (other)	**None Detected**
A-6-DJC-01B-Drywall Joint Compound *551204592-0002*	2nd floor - drywall joint compound	Gray/Tan Fibrous Homogeneous	15%	Cellulose	85%	Non-fibrous (other)	**None Detected**
A-6-DJC-01C *551204592-0003*	Upper main floor washroom 2 - drywall joint compound	Gray/White Fibrous Homogeneous	2%	Cellulose	98%	Non-fibrous (other)	**None Detected**
A-6-DJC-01D *551204592-0004*	Upper main floor washroom 2 - drywall joint compound	White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
A-6-DJC-01E *551204592-0005*	Upper main floor washroom 2 - drywall joint compound	White Non-Fibrous Homogeneous	<1%	Cellulose	100%	Non-fibrous (other)	**None Detected**
A-6-DJC-02A *551204592-0006*	Upper main floor washroom 1 - drywall joint compound	White Fibrous Homogeneous	2%	Cellulose	98%	Non-fibrous (other)	**None Detected**

Analyst(s)

Orlando J. Ivey II (24)
Ryan Shannon (10)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Ann Arbor, MI

Initial report from 10/16/2012 14:02:10

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Received:	10/09/12 11:11 AM
Analysis Date:	10/11/2012
Collected:	

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
A-6-DJC-02B *551204592-0007*	Laundry room - drywall joint compound	Gray/White Fibrous Homogeneous	3%	Cellulose	97% Non-fibrous (other)	**None Detected**
A-6-DJC-02C *551204592-0008*	Porch - drywall joint compound	White Non-Fibrous Homogeneous	<1%	Cellulose	100% Non-fibrous (other)	**None Detected**
A-6-SF-01A *551204592-0009*	Porch - sheet flooring brown and white pentagon pattern	Brown/White Fibrous Heterogeneous	15% 6%	Cellulose Glass	79% Non-fibrous (other)	**None Detected**
A-6-SF-01B *551204592-0010*	Porch - sheet flooring brown and white pentagon pattern	White Fibrous Homogeneous	20% 15%	Cellulose Glass	65% Non-fibrous (other)	**None Detected**
A-6-SF-01C *551204592-0011*	Porch - sheet flooring brown and white pentagon pattern	Gray/Tan Fibrous Heterogeneous	20% 4%	Cellulose Glass	76% Non-fibrous (other)	**None Detected**
A-6-SF-02A *551204592-0012*	Upper main floor dining room - sheet flooring beige and cream specks	Gray/Beige/Cream Fibrous Homogeneous	7% 4%	Cellulose Glass	89% Non-fibrous (other)	**None Detected**
A-6-SF-02B *551204592-0013*	Upper main floor dining room - sheet flooring beige and cream specks	Gray/Beige Fibrous Heterogeneous	15% 5%	Cellulose Glass	80% Non-fibrous (other)	**None Detected**

Analyst(s)

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Samples analyzed by EMSL Analytical, Inc. Ann Arbor, MI

Initial report from 10/16/2012 14:02:10

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Analysis Date: 10/11/2012
Collected:

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
A-6-SF-02C *551204592-0014*	Upper main floor dining room - sheet flooring beige and cream specks	Gray/Tan/White Fibrous Heterogeneous	20% Cellulose 3% Glass		77% Non-fibrous (other)	**None Detected**
A-6-SF-03A *551204592-0015*	Upper main floor dining room (2nd layer) - sheet flooring beige and cream pebble pattern	Gray Fibrous Heterogeneous	35% Cellulose		45% Non-fibrous (other)	**20% Chrysotile**
A-6-SF-03B *551204592-0016*	Upper main floor dining room (2nd layer) - sheet flooring beige and cream pebble pattern					**Stop Positive (Not Analyzed)**
A-6-SF-03C *551204592-0017*	Upper main floor dining room (2nd layer) - sheet flooring beige and cream pebble pattern					**Stop Positive (Not Analyzed)**
A-6-SF-04A *551204592-0018*	Upper main floor washroom 2 - sheet flooring snowflake pattern	Gray/Beige Fibrous Heterogeneous	12% Cellulose 7% Glass		81% Non-fibrous (other)	**None Detected**

Analyst(s)
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Ryan Shannon (10)

Kevin Pang
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Ann Arbor, MI

Initial report from 10/16/2012 14:02:10

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Collected:	

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
A-6-SF-04B *551204592-0019*	Upper main floor washroom 2 - sheet flooring snowflake pattern	Gray/Beige Fibrous Heterogeneous	15% Cellulose 8% Glass		77% Non-fibrous (other)	**None Detected**
A-6-SF-04C *551204592-0020*	Upper main floor washroom 2 - sheet flooring snowflake pattern	Gray/Tan Fibrous Heterogeneous	25% Cellulose 2% Glass		73% Non-fibrous (other)	**None Detected**
A-6-FT-01A-Floor Tile *551204592-0021*	2nd floor bedroom 4 - floor tile beige and tan faux stonework pattern	Gray/Tan Fibrous Homogeneous			92% Non-fibrous (other)	**8% Chrysotile**
A-6-FT-01A-Mastic *551204592-0021A*	2nd floor bedroom 4 - floor tile beige and tan faux stonework pattern	Brown/Yellow Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
A-6-FT-01B-Floor Tile *551204592-0022*	2nd floor bedroom 4 - floor tile beige and tan faux stonework pattern					**Stop Positive (Not Analyzed)**
A-6-FT-01B-Mastic *551204592-0022A*	2nd floor bedroom 4 - floor tile beige and tan faux stonework pattern	Brown/Yellow Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
A-6-FT-01C-Floor Tile *551204592-0023*	2nd floor bedroom 4 - floor tile beige and tan faux stonework pattern					**Stop Positive (Not Analyzed)**

Analyst(s)

Orlando J. Ivey II (24)
Ryan Shannon (10)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Ann Arbor, MI

Initial report from 10/16/2012 14:02:10

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
Phone/Fax: 289-997-4602 / (289) 997-4607
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CustomerID:	55JACQ30L
CustomerPO:	123710520
ProjectID:	

Attn: **Zack Kranjec**
Stantec Consulting, Ltd.
1100- 111 Dunsmuir Street
Vancouver, BC V6B 6A3

Phone:	(604) 696-8272
Fax:	
Received:	10/09/12 11:11 AM
Analysis Date:	10/11/2012
Collected:	

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**% Type**
A-6-FT-01C-Mastic *551204592-0023A*	2nd floor bedroom 4 - floor tile beige and tan faux stonework pattern	Yellow Non-Fibrous Homogeneous	10%	Cellulose	90%	Non-fibrous (other)	**None Detected**
A-6-PL-01A *551204592-0024*	Upper main floor dining room - wall plaster	Gray/White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
A-6-PL-01B *551204592-0025*	2nd floor stairwell - wall plaster	Gray/White Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
A-6-PL-01C *551204592-0026*	Upper main floor livingroom - wall plaster	Gray/White Fibrous Homogeneous	3%	Cellulose	97%	Non-fibrous (other)	**None Detected**
A-6-PL-01D *551204592-0027*	Upper main floor kitchen - wall plaster	Gray/White Non-Fibrous Heterogeneous	<1%	Cellulose	100%	Non-fibrous (other)	**None Detected**
A-6-PL-01E *551204592-0028*	Upper main floor bedroom 1 - wall plaster	Gray/White Fibrous Heterogeneous	<1%	Cellulose	100%	Non-fibrous (other)	**None Detected**
A-6-FF-01A *551204592-0029*	2nd floor bedroom 3 - floor felt underlay black	Black Fibrous Heterogeneous	20%	Cellulose	80%	Non-fibrous (other)	**None Detected**
A-6-FF-01B *551204592-0030*	2nd floor bedroom 3 - floor felt underlay black	Black Fibrous Homogeneous	15%	Cellulose	85%	Non-fibrous (other)	**None Detected**

Analyst(s)

Orlando J. Ivey II (24)
Ryan Shannon (10)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Ann Arbor, MI

Initial report from 10/16/2012 14:02:10

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
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CustomerID:	55JACQ30L
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Attn: **Zack Kranjec**
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Phone:	(604) 696-8272
Fax:	
Received:	10/09/12 11:11 AM
Analysis Date:	10/11/2012
Collected:	

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-6-FF-01C *551204592-0031*	2nd floor bedroom 3 - floor felt underlay black	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (other)	**None Detected**
A-6-FS-01A *551204592-0032*	Basement - fire stop grey colour	Gray/White Fibrous Homogeneous		90% Non-fibrous (other)	**10% Chrysotile**
A-6-FS-01B *551204592-0033*	Basement - fire stop grey colour				**Stop Positive (Not Analyzed)**
A-6-FS-01C *551204592-0034*	Basement - fire stop grey colour				**Stop Positive (Not Analyzed)**
A-6-BM-01A *551204592-0035*	Basement - brick mortor light grey colour	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
A-6-BM-01B *551204592-0036*	Basement - brick mortor light grey colour	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
A-6-BM-01C *551204592-0037*	Basement - brick mortor light grey colour	Gray Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (other)	**None Detected**

Analyst(s)

Orlando J. Ivey II (24)
Ryan Shannon (10)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Ann Arbor, MI

Initial report from 10/16/2012 14:02:10

THIS IS THE LAST PAGE OF THE REPORT.

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
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EMSL Canada Or	551204520
CustomerID:	55JACQ30L
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ProjectID:	

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Stantec Consulting, Ltd.
1100- 111 Dunsmuir Street
Vancouver, BC V6B 6A3

Phone: (604) 696-8272
Fax:
Received: 10/02/12 11:21 AM
Collected:

Project: **123710520**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
P-6-01	*0001*		10/3/2012	1800 ppm
	Site: LOWER MAIN FLOOR STAIRWELL WALLS Desc: WHITE COLOUR PAINT			
P-6-02	*0002*		10/3/2012	32000 ppm
	Site: LOWER MAIN FLOOR STAIRWELL FLOORS Desc: GREY COLOUR PAINT			
P-6-03	*0003*		10/3/2012	22000 ppm
	Site: EXTERIOR WALLS Desc: WHITE COLOUR PAINT			

Kevin Pang
or other approved signatory

Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 10/12/2012 14:06:30

MAIN CENTER

Building 6A – Garage

One Team. Infinite Solutions.

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5.0 FINDINGS – BUILDING 6A GARAGE

Building 6A Garage was reportedly constructed in 1892.

Stantec understands that the plan for Building 6A Garage is demolition.

The results of the assessment for each of the considered hazardous materials within Building 6A Garage are provided in the following sub-sections.

Floor plan drawings for Building 6A Garage, which include locations of the samples collected during this assessment, and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.1 Asbestos

Suspected ACMs were not observed.

5.2 Lead

Suspected lead-containing items were not observed.

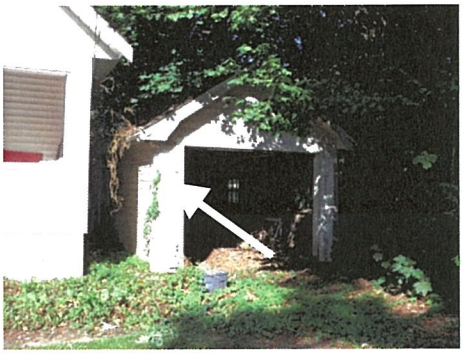
With respect to paint, 1 paint chip sample was obtained, where a suspected LCP was observed. A summary of the sample type, location and analytical result is presented in Table 6A-5.2.1, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP sample submitted is attached to this Appendix.

Table 6A-5.2.1: Suspected LCP Sample Collection and Analysis Summary
Building 6A Garage
Pacific Agri-Food Research Centre (Main Centre)

Sample No.	Sample Location	Sample Colour	Lab Result (ppm)	Lead Containing (Yes/No)
P-6A-01	Garage exterior siding	White	2,600	Yes

Based on our observations and on our interpretations of suspected LCP sample analytical results, the materials presented in Table 6A-5.2.2, below were identified as LCPs.

Table 6A-5.2.2: Summary of Identified LCPs
Building 6A Garage – Pacific Agri-Food Research Centre

Identified LCP Description	Photo
White paint on the exterior. This paint was observed to be in good condition (minimal flaking or peeling).	

5.3 Polychlorinated Biphenyls

Two (2) fluorescent light fixtures were observed. These light fixtures may have ballasts that contain PCBs.

5.4 Mercury

Mercury vapour may be present within fluorescent light tubes.

5.5 Equipment with Radioactive Components

No equipment containing radioactive components was observed.

5.6 Mould

No suspect mould was observed.

6.0 RECOMMENDATIONS TO ADDRESS IDENTIFIED ISSUES – BUILDING 6A GARAGE

The recommendations pertaining to those hazardous building materials identified to be in non-compliant condition within Building 6A Garage are provided in the following sub-sections. General recommendations pertaining to managing identified hazardous building materials in good condition are provided in the main body of this report.

6.1 Asbestos

As ACMs were not identified, no specific recommendations have been developed.

6.2 Lead

For the LCP and other lead-containing materials identified within the building that are to be disturbed and/or removed, ensure compliance with the following:

- The occupational exposure control requirements of BC Reg. 296/97 including the provisions of the BC Lead Guideline.
- The disposal requirements of the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88).
- The transportation requirements of the *Federal Transportation of Dangerous Goods Regulation*.

Corrective action or remedial work on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). Airborne lead dust or fumes should not exceed the BC Reg. 296/97 8-hour Occupational Exposure Limit (OEL) of 0.05 milligram per cubic metre (mg/m^3) during the removal of paints and products containing any concentration of lead. The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust.

6.3 Polychlorinated Biphenyls

As the fluorescent lamp ballasts may contain PCBs, they should be assessed in reference to the PCB Guide prior to disposal.

If PCB-containing items are identified and require removal, they should be handled, transported, stored and disposed of according to the *Federal Transportation of Dangerous Goods Regulation,* BC Reg. 63/88, and the *PCB Regulations* (SOR/2008-273).

6.4 Mercury

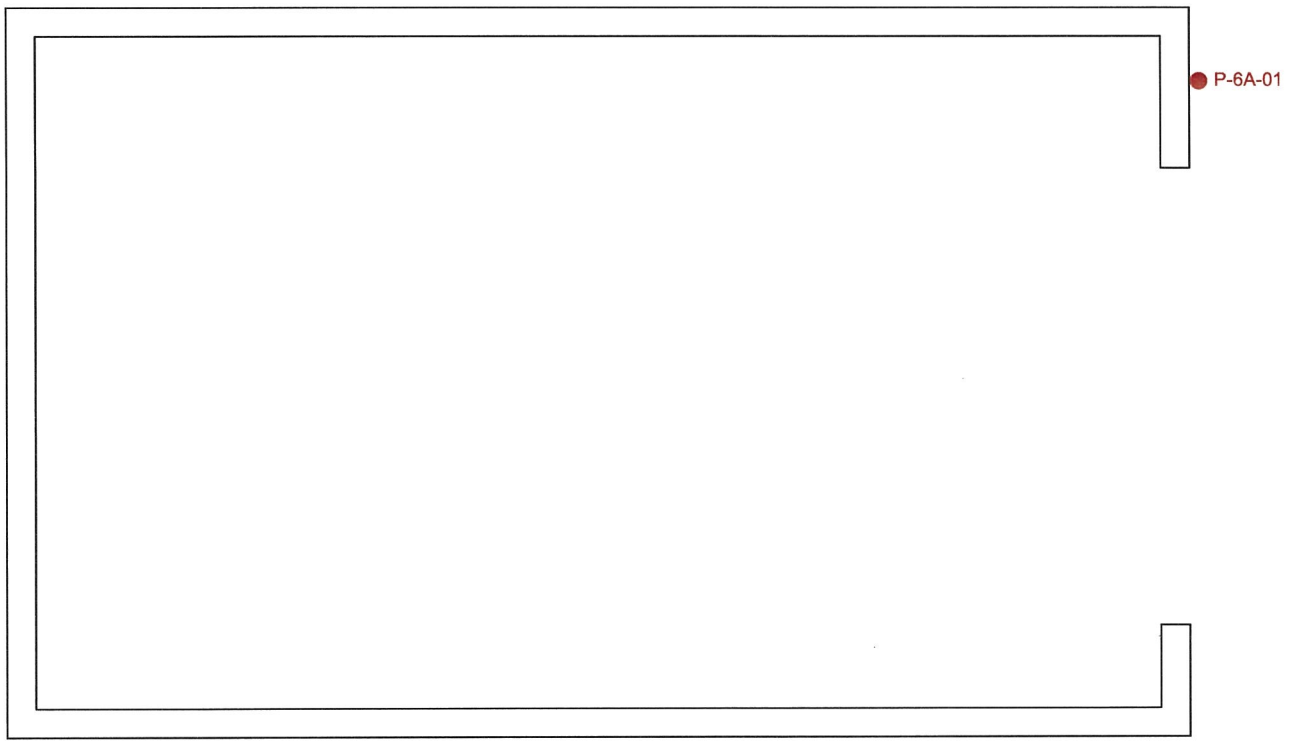
For mercury-containing materials (e.g., thermostats, thermometers, fluorescent light bulbs) that are to be removed, ensure all mercury waste is handled, stored and disposed of in accordance with the requirements of the BC Reg. 63/88 and the *Federal Transportation of Dangerous Goods Regulation.*

6.5 Equipment with Radioactive Components

No equipment with radioactive components was observed. No specific recommendations have been developed.

6.6 Mould

No suspect mould was observed. No specific recommendations have been developed.



GARAGE

LEGEND

● PAINT CHIP SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 6A GARAGE

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/11/22
Dwn. By:	CD VM SL2012110310
App'd By:	SB

Dwg. No.: 1

Stantec

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CustomerPO:	123710520
ProjectID:	

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Phone: (604) 696-8272
Fax:
Received: 10/02/12 11:21 AM
Collected:

Project: **123710520**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
P-6A-01	*0004*		10/3/2012	2600 ppm
	Site: EXTERIOR GARAGE WALLS Desc: WHITE COLOUR PAINT			

Kevin Pang
or other approved signatory

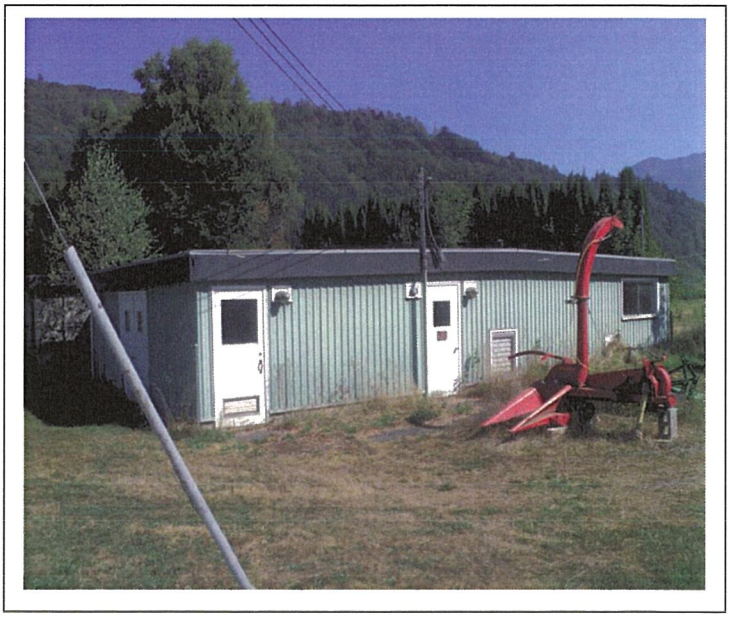
Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 10/12/2012 14:06:30

MAIN CENTER

Building 53 – Water Supply



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Stantec

5.0 FINDINGS – BUILDING 53 WATER SUPPLY

Building 53 Water Supply was reportedly constructed in 1968.

Stantec understands that the plan for Building 53 Water Supply is demolition.

The results of the assessment for each of the considered hazardous materials within Building 53 Water Supply are provided in the following sub-sections.

Floor plan drawings for Building 53 Water Supply, which include locations of the samples collected during this assessment, and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.1 Asbestos

Stantec identified and sampled various suspected ACMs, including the following:

- Drywall joint compound
- Parging cement applied to pipe fittings
- Roof flashing caulking
- Cement panel
- Concrete
- Pipe lagging
- Roofing material.

18 samples of the above-noted suspected ACMs were collected and submitted to EMSL for analysis of asbestos content and nature. A summary of the sample types, locations and analytical results is presented in Table 53-5.1.1, below. Copies of the certificates of analysis provided by EMSL for the suspected ACM samples submitted are attached at the end of this Appendix.

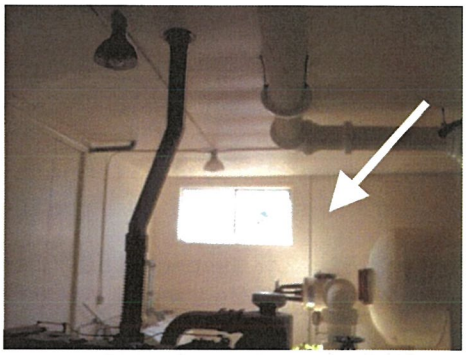
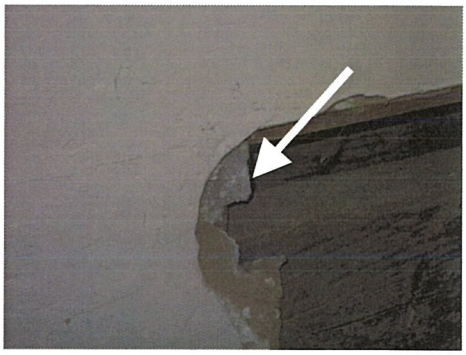
Table 53-5.1.1: Suspected ACM Sample Collection and Analysis Summary
Building 53 Water Supply
Pacific Agri-Food Research Centre (Main Centre)

Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-53-DJC-01A	**Drywall joint compound**	**Water tank room**	**1.5% Chrysotile**
A-53-DJC-01B	Drywall joint compound	Water tank room	None Detected
A-53-DJC-01C	**Drywall joint compound**	**Water tank room**	**0.5% Chrysotile**
A-53-PC-01A	Parging cement	Pipe fittings	None Detected
A-53-PC-01B	Parging cement	Pipe fittings	None Detected
A-53-PC-01C	Parging cement	Pipe fittings	None Detected

Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-53-PC-01D	Parging cement	Water tank	None Detected
A-53-CAU-01A	Roof flashing caulking Black	Flashing	None Detected
A-53-CAU-01B	Roof flashing caulking Black	Flashing	None Detected
A-53-CAU-01C	Roof flashing caulking Black	Flashing	None Detected
A-53-TP-01A	**Cement panel**	**Water tank room**	**20% Chrysotile**
A-53-TP-01B	**Cement panel**	**Water tank room**	**Stop Positive (Not Analyzed)**
A-53-TP-01C	**Cement panel**	**Water tank room**	**Stop Positive (Not Analyzed)**
A-53-C-01A	Concrete	Exterior	None Detected
A-53-C-01B	Concrete	Exterior	None Detected
A-53-C-01C	Concrete	Exterior	None Detected
A-53-LAG-01A	Lagging	Mechanical pipes	None Detected
A-53-LAG-01B	Lagging	Mechanical pipes	None Detected
A-53-LAG-01C	Lagging	Mechanical pipes	None Detected
A-53-RM-01A	Roofing material	Roof	None Detected
A-53-RM-01B	Roofing material	Roof	None Detected
A-53-RM-01C	Roofing material	Roof	None Detected

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the materials presented in Table 53-5.1.2, below were identified as ACMs.

Table 53-5.1.2: Summary of Identified ACMs
Building 53 Water Supply
Pacific Agri-Food Research Centre (Main Centre)

Identified ACM Description and Condition Information		Photo
Drywall joint compound – present in the water tank room		
Friability	Non-Friable	
Condition	Good (minimal damage)	
Access	A	
Cement panel – present within walls in the water tank room (and presumed present within ceiling)		
Friability	Non-friable	
Condition	Good (minimal damage)	
Access	A	

5.2 Lead

Lead is expected to be present in the following materials:

- Solder used on copper domestic pipes
- Caulking on bell fittings for cast iron drainage pipes
- Electrical equipment (i.e., batteries for emergency lighting/signage).

With respect to paint, two (2) paint chip samples were obtained, where suspected LCPs were observed. A summary of the sample types, locations and analytical results is presented in Table 53-5.2.1, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

Table 53-5.2.1: Suspected LCP Sample Collection and Analysis Summary
Building 53 Water Supply
Pacific Agri-Food Research Centre (Main Centre)

Sample No.	Sample Location	Sample Colour	Lab Result (ppm)	Lead Containing (Yes/No)
P-53-01	**Building exterior (doors and trim)**	**White**	**2700**	**Yes**
P-53-02	Interior walls	White	520	No

Based on our observations and on our interpretations of suspected LCP sample analytical results, the materials presented in Table 53-5.2.2, below were identified as LCPs.

Table 53-5.2.2: Summary of Identified LCPs
Building 53 Water Supply
Pacific Agri-Food Research Centre (Main Centre)

Identified LCP Description	Photo
White paint on the exterior. This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	No photo.available

5.3 Polychlorinated Biphenyls

Fluorescent light fixtures were not observed.

A transformer was observed within the water tank room that appears to be a dry-type (not potential PCB-containing).

5.4 Mercury

One (1) mercury-containing wall-mounted thermostat was observed.

Mercury vapour may be present within high intensity discharge lights on the exterior.

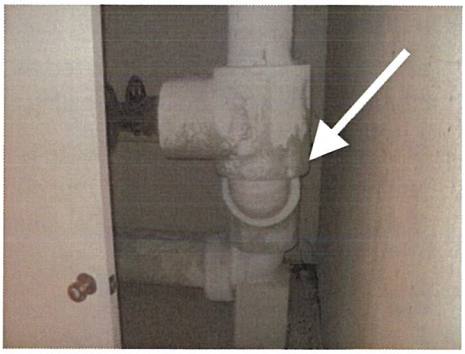
5.5 Equipment with Radioactive Components

Heat/smoke detection devices suspected to contain radioactive components were observed.

5.6 Mould

Observations made pertaining to mould and/or moisture are summarized in Table 53-5.6.1, below..

Table 53-5.6.1: Summary of Suspected Mould-Impacted Building Materials
Building 53 Water Supply
Pacific Agri-Food Research Centre (Main Centre)

Identified ACM Description and Condition Information	Photo
Suspect mould was observed on mechanical pipe lagging and various surfaces throughout.	 

6.0 RECOMMENDATIONS TO ADDRESS IDENTIFIED ISSUES – BUILDING 53 WATER SUPPLY

The recommendations pertaining to those hazardous building materials identified to be in non-compliant condition within Building 53 Water Supply are provided in the following sub-sections. General recommendations pertaining to managing identified hazardous building materials in good condition are provided in the main body of this report.

6.1 Asbestos

ACMs identified within the building as listed in Table 53-5.1.2 should be removed and disposed of in accordance with the requirements of BC Reg. 296/97 prior to demolition activities that may impact them.

If materials that are visually similar to identified ACMs are discovered within the building in locations not outlined in this report, these materials should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

If encountered during demolition activities, any suspected ACMs not accessible during this assessment should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

Ensure asbestos containing waste is handled, stored, and disposed of in accordance with the requirements of the *Federal Transportation of Dangerous Goods Regulation* and the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88).

6.2 Lead

For LCPs and other lead-containing materials identified within the building that are to be disturbed and/or removed, ensure compliance with the following:

- The occupational exposure control requirements of BC Reg. 296/97, including the provisions of the BC Lead Guideline
- The disposal requirements of the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88)
- The transportation requirements of the Federal Transportation of Dangerous Goods Regulation.

Corrective action or remedial work on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). Airborne lead dust or fumes should not exceed the BC Reg. 296/97 8-hour Occupational Exposure Limit (OEL) of 0.05 milligram per cubic metre (mg/m^3) during the removal of paints and products containing any concentration of lead. The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust.

6.3 Polychlorinated Biphenyls

PCB-containing items were not identified. No specific recommendations have been developed.

6.4 Mercury

For mercury-containing materials (e.g., thermostats, thermometers, fluorescent light bulbs) that are to be removed, ensure all mercury waste is handled, stored and disposed of in accordance with the requirements of the BC Reg. 63/88 and the *Federal Transportation of Dangerous Goods Regulation*

6.5 Equipment with Radioactive Components

As it could not be determined whether radioactive components were present in the smoke detectors, caution should be taken and the smoke detectors should be handled as if they contain radioactive components, unless additional information (e.g., labels) proves otherwise.

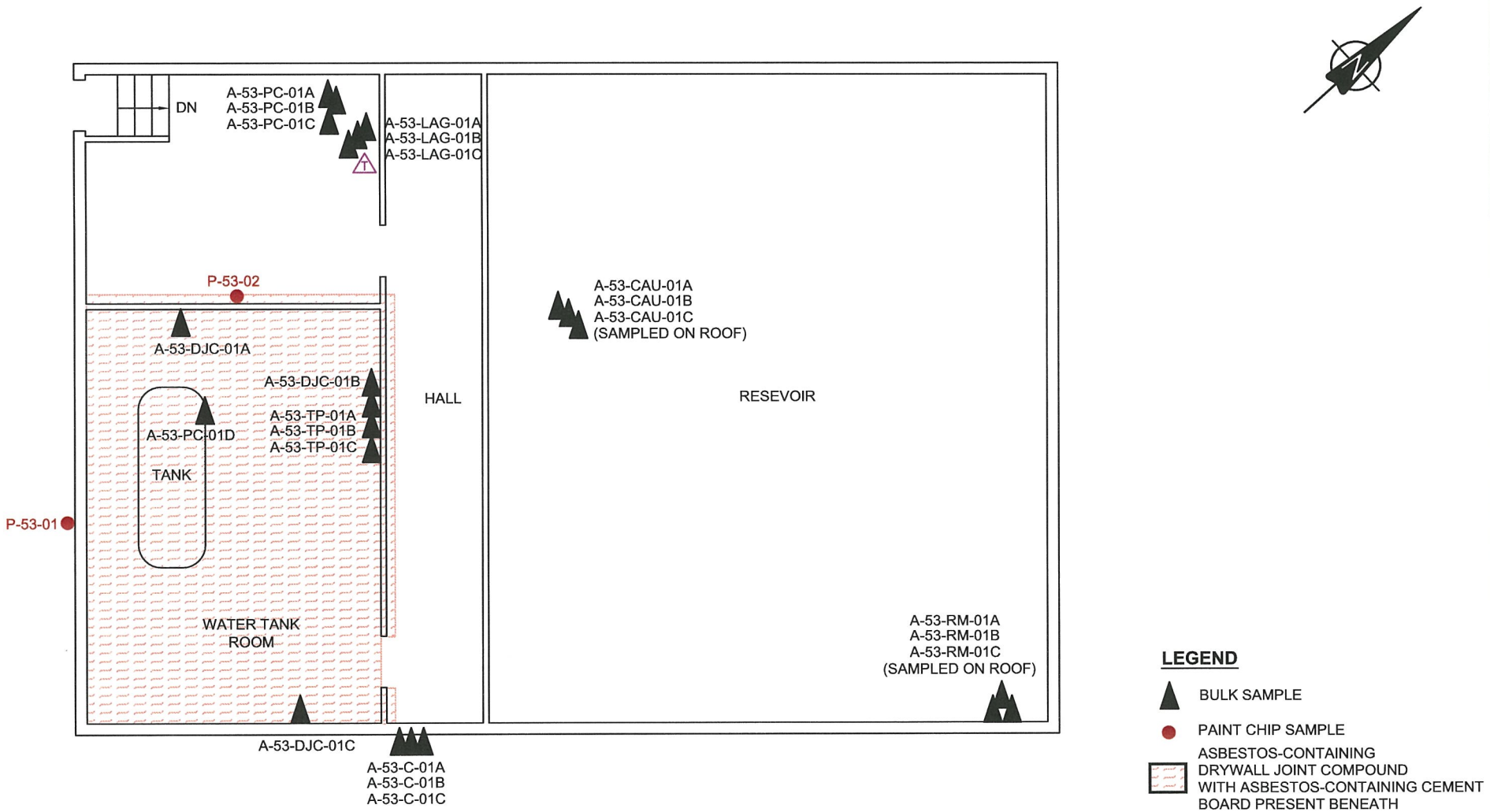
For identified radioactive components that require removal, these items should be transported and disposed of in accordance with the following:

- *The Federal Transportation of Dangerous Goods Act*
- *The Nuclear Safety and Control Act (1997, c.9), Nuclear Substances and Radiation Devices Regulations (SOR/2000-207)*

6.6 Mould

Stantec recommends that when demolition within the building proceeds, it is expected that mould and/or moisture-impacted building materials will be removed and disposed of during that process. Due to the suspected presence of mold on building materials, and if those impacted materials are to be removed by hand, demolition workers should be notified of the presence of mold-impacted building materials and be provided with respiratory protection and/or other personal protective equipment (PPE) as deemed necessary for the work that they will be conducting.

Where mould is present on drywall materials, precautions, procedures and personal protective equipment associated with asbestos will be sufficient in protecting workers from exposure to mould.



LEGEND

- BULK SAMPLE
- PAINT CHIP SAMPLE
- ASBESTOS-CONTAINING DRYWALL JOINT COMPOUND WITH ASBESTOS-CONTAINING CEMENT BOARD PRESENT BENEATH
- MERCURY-CONTAINING THERMOSTAT

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 53 WATER SUPPLY

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/11/22
Dwn. By:	CD VM SL2012110329
App'd By:	SB

Dwg. No.: 1

Stantec

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EMSL Canada Or	551204502
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CustomerPO:	123710520
ProjectID:	

Attn: **Zack Kranjec**
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Vancouver, BC V6B 6A3

Phone:	(604) 696-8272
Fax:	
Received:	10/02/12 11:23 AM
Analysis Date:	10/9/2012
Collected:	

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
A-53-DJC-01B *551204502-0057*	WATER TANK ROOM - DRYWALL JOINT COMPOUND	White Non-Fibrous Heterogeneous			100% Non-fibrous (other)	**None Detected**
			Sample group does not appear to be homogeneous.			
A-53-PC-01A *551204502-0059*	PIPE FITTINGS - PARGING CEMENT	Gray Fibrous Heterogeneous	15% 5%	Cellulose Glass	80% Non-fibrous (other)	**None Detected**
A-53-PC-01B *551204502-0060*	PIPE FITTINGS - PARGING CEMENT	Gray Fibrous Heterogeneous	15% 5%	Cellulose Glass	80% Non-fibrous (other)	**None Detected**
A-53-PC-01C *551204502-0061*	PIPE FITTINGS - PARGING CEMENT	Gray Fibrous Heterogeneous	15% 5%	Cellulose Glass	80% Non-fibrous (other)	**None Detected**
A-53-PC-01D *551204502-0062*	WATER TANK - PARGING CEMENT	Gray Fibrous Heterogeneous	15% 5%	Cellulose Glass	80% Non-fibrous (other)	**None Detected**
A-53-CAU-01A *551204502-0063*	FLASHING - WINDOW CAULKING BLACK	Black Non-Fibrous Heterogeneous			100% Non-fibrous (other)	**None Detected**
A-53-CAU-01B *551204502-0064*	FLASHING - WINDOW CAULKING BLACK	Black Non-Fibrous Heterogeneous			100% Non-fibrous (other)	**None Detected**

Analyst(s)

Chelsey Bilhear (11) *Samantha Rundstorm (1)*
Christopher Mercer (6)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872

Initial report from 10/09/2012 07:23:52

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
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EMSL Canada Or	551204502
CustomerID:	55JACQ30L
CustomerPO:	123710520
ProjectID:	

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Phone: (604) 696-8272
Fax:
Received: 10/02/12 11:23 AM
Analysis Date: 10/9/2012
Collected:

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-53-CAU-01C *551204502-0065*	FLASHING - WINDOW CAULKING BLACK	Black Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-53-TP-01A *551204502-0066*	WATER TANK ROOM - CEMENT PANEL	Gray Fibrous Heterogeneous		80% Non-fibrous (other)	**20% Chrysotile**
A-53-TP-01B *551204502-0067*	WATER TANK ROOM - CEMENT PANEL				**Stop Positive (Not Analyzed)**
A-53-TP-01C *551204502-0068*	WATER TANK ROOM - CEMENT PANEL				**Stop Positive (Not Analyzed)**
A-53-C-01A *551204502-0069*	EXTERIOR - CONCRETE	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-53-C-01B *551204502-0070*	EXTERIOR - CONCRETE	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-53-C-01C *551204502-0071*	EXTERIOR - CONCRETE	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-53-LAG-01A *551204502-0072*	MECHANICAL PIPES - LAGGING	White Fibrous Heterogeneous	15% Cellulose	85% Non-fibrous (other)	**None Detected**

Analyst(s)

Chelsey Bilhear (11) *Samantha Rundstorm (1)*
Christopher Mercer (6)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872

Initial report from 10/09/2012 07:23:52

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CustomerID:	55JACQ30L
CustomerPO:	123710520
ProjectID:	

Attn: **Zack Kranjec**
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Phone:	(604) 696-8272
Fax:	
Received:	10/02/12 11:23 AM
Analysis Date:	10/9/2012
Collected:	

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
A-53-LAG-01B *551204502-0073*	MECHANICAL PIPES - LAGGING	White/Yellow Fibrous Heterogeneous	10% Cellulose 15% Min. Wool		75% Non-fibrous (other)	**None Detected**
A-53-LAG-01C *551204502-0074*	MECHANICAL PIPES - LAGGING	White Fibrous Heterogeneous	20% Cellulose		80% Non-fibrous (other)	**None Detected**
A-53-RM-01A *551204502-0075*	ROOF - ROOFING MATERIAL	Black Non-Fibrous Heterogeneous	10% Cellulose		90% Non-fibrous (other)	**None Detected**
A-53-RM-01B *551204502-0076*	ROOF - ROOFING MATERIAL	Black Non-Fibrous Heterogeneous	10% Cellulose		90% Non-fibrous (other)	**None Detected**
A-53-RM-01C *551204502-0077*	ROOF - ROOFING MATERIAL	Black Fibrous Heterogeneous	10% Cellulose		90% Non-fibrous (other)	**None Detected**

Analyst(s)

Chelsey Bilhear (11) *Samantha Rundstorm (1)*
Christopher Mercer (6)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872

Initial report from 10/09/2012 07:23:52

EMSL Canada Inc.

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Phone: (604) 696-8272
Fax:
Collected:
Received: 10/02/2012
Analyzed: 10/09/2012

Proj: 123710520

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: A-53-DJC-01A ***Lab Sample ID:*** **551204502-0056**

Sample Description: WATER TANK ROOM/DRYWALL JOINT COMPOUND

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
400 PLM Pt Ct	10/08/2012	Beige	0%	98.50%	**1.50% Chrysotile**	

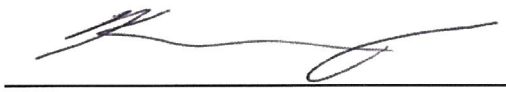
Client Sample ID: A-53-DJC-01C ***Lab Sample ID:*** **551204502-0058**

Sample Description: WATER TANK ROOM/DRYWALL JOINT COMPOUND

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
400 PLM Pt Ct	10/09/2012	White	0%	99.50%	**0.50% Chrysotile**	

Analyst(s)

Chelsey Bilhear	400 PLM Pt Ct	(1)
Christopher Mercer	400 PLM Pt Ct	(1)



Kevin Pang
or other Approved Signatory

Any questions please contact Kevin Pang.

Initial report from: 10/09/201207:23:52

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Vancouver, BC V6B 6A3

Phone: (604) 696-8272
Fax:
Received: 10/02/12 11:25 AM
Collected:

Project: **123710520**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
P-53-01	*0016*		10/5/2012	2700 ppm
	Site: EXTERIOR WALLS Desc: WHITE COLOUR PAINT			
P-53-02	*0017*		10/5/2012	520 ppm
	Site: INTERIOR WALLS Desc: WHITE COLOUR PAINT			

Kevin Pang
or other approved signatory

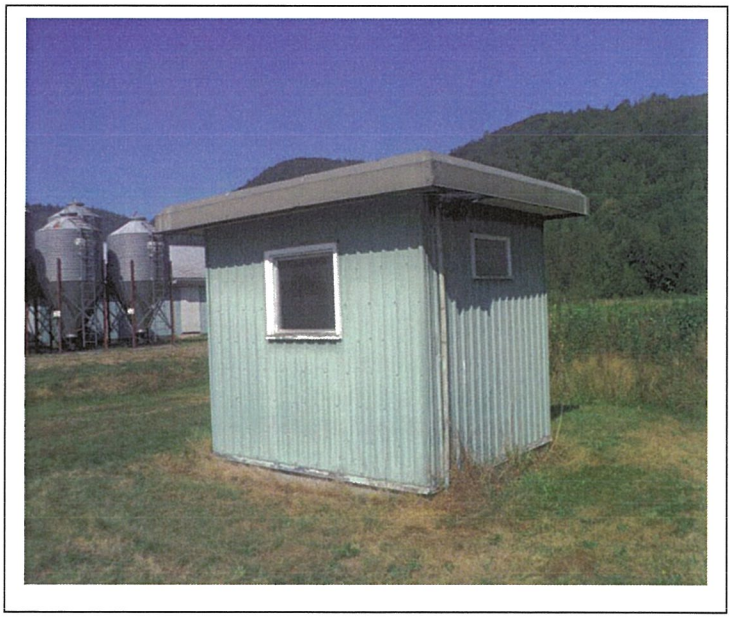
Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 10/12/2012 14:56:16

MAIN CENTER

Building 53A – Well 1



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Stantec

5.0 FINDINGS – BUILDING 53A WELL 1

Building 53A Well 1 was reportedly constructed in 1968.

Stantec understands that the plan for Building 53A Well 1 is demolition.

The results of the assessment for each of the considered hazardous materials within Building 53A Well 1 are provided in the following sub-sections.

Floor plan drawings for Building 53A Well 1, which include locations of the samples collected during this assessment, and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.1 Asbestos

Suspected ACMs were not observed.

5.2 Lead

Lead is expected to be present in the following materials:

- Solder used on copper domestic pipes
- Caulking on bell fittings for cast iron drainage pipes
- Electrical equipment (i.e. batteries for emergency lighting/signage).

With respect to paint, two (2) paint chip samples were obtained, where suspected LCPs were observed. A summary of the sample types, locations and analytical results is presented in Table 53A-5.2.1, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

Table 53A-5.2.1: Suspected LCP Sample Collection and Analysis Summary
Building 53A Well 1
Pacific Agri-Food Research Centre (Main Centre)

Sample No.	Sample Location	Sample Colour	Lab Result (ppm)	Lead Containing (Yes/No)
P-53A-01	Trim	White	< 90	No
P-53A-02	**Exterior walls**	**Green**	**13,000**	**Yes**

Based on our observations and on our interpretations of suspected LCP sample analytical results, the materials presented in Table 53A-5.2.2, below was identified as an LCP.

Table 53A-5.2.2: Summary of Identified LCPs
Building 53A Well 1
Pacific Agri-Food Research Centre (Main Centre)

Identified LCP Description	Photo
Green paint on the building's exterior. This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	

5.3 Polychlorinated Biphenyls

Fluorescent light fixtures were not observed.

5.4 Mercury

Mercury-containing equipment was not observed.

5.5 Equipment with Radioactive Components

Equipment containing radioactive components was not observed.

5.6 Mould

Suspect mould was not observed.

6.0 RECOMMENDATIONS TO ADDRESS IDENTIFIED ISSUES – BUILDING 53A WELL 1

The recommendations pertaining to those hazardous building materials identified to be in non-compliant condition within Building 53A Well 1 are provided in the following sub-sections. General recommendations pertaining to managing identified hazardous building materials in good condition are provided in the main body of this report.

6.1 Asbestos

As ACMs were not identified, no specific recommendations have been developed.

6.2 Lead

For LCPs and other lead-containing materials identified within the building that are to be disturbed and/or removed, ensure compliance with the following:

- The occupational exposure control requirements of BC Reg. 296/97
- The disposal requirements of the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88)
- The transportation requirements of the Federal Transportation of Dangerous Goods Regulation.

Corrective action or remedial work on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). Airborne lead dust or fumes should not exceed the BC Reg. 296/97 8-hour Occupational Exposure Limit (OEL) of 0.05 milligram per cubic metre (mg/m^3) during the removal of paints and products containing any concentration of lead. The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust.

6.3 Polychlorinated Biphenyls

PCB-containing items were not identified. No specific recommendations have been developed.

6.4 Mercury

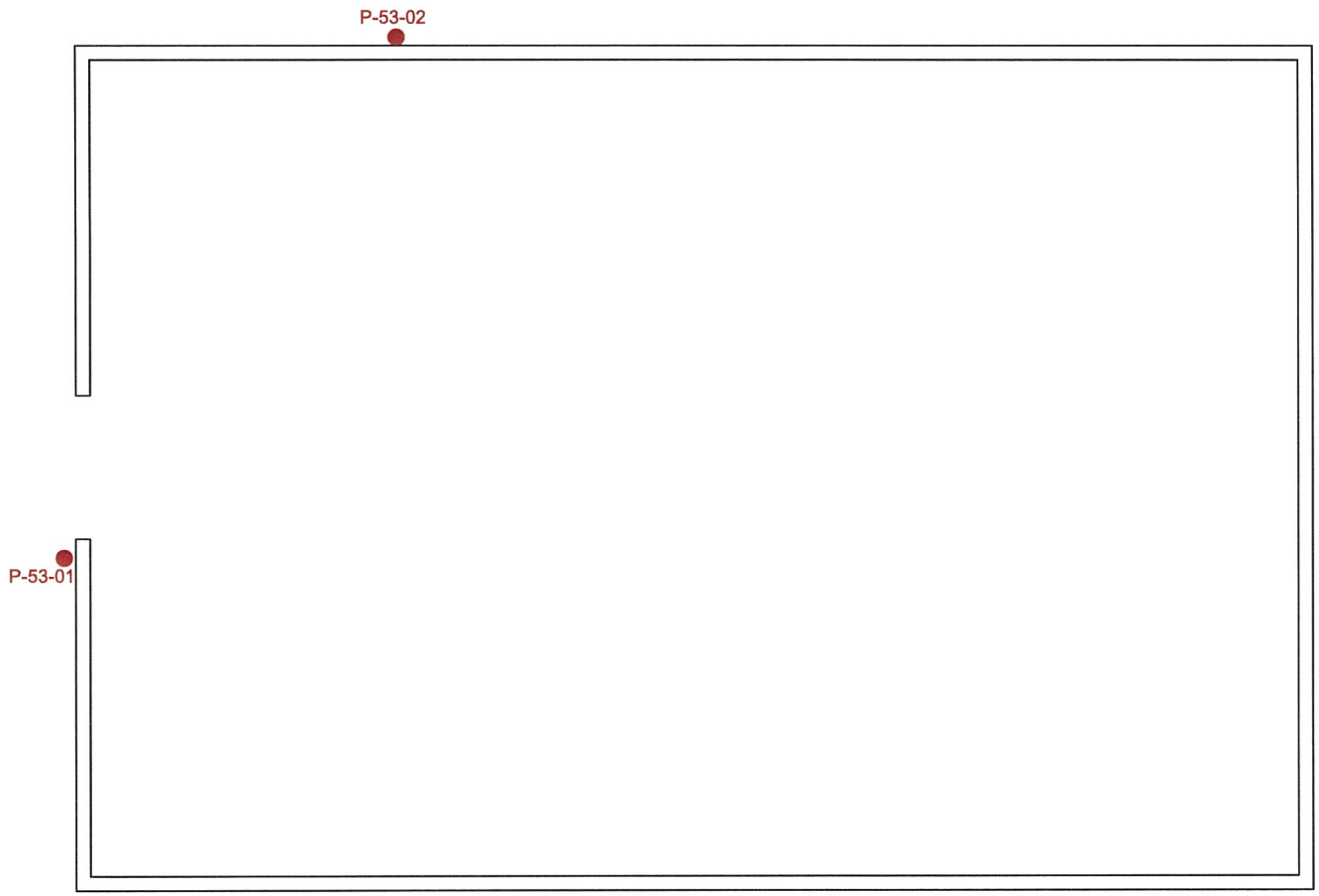
Mercury-containing items were not observed. No specific recommendations have been developed.

6.5 Equipment with Radioactive Components

Equipment with radioactive components was not identified. No specific recommendations have been developed.

6.6 Mould

No suspect mould was observed. No specific recommendations have been developed.



LEGEND

● PAINT CHIP SAMPLE

NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 53A WELL 1

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/11/22
Dwn. By:	CD VM SL2012110330
App'd By:	SB

Dwg. No.: 1

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Phone: (604) 696-8272
Fax:
Received: 10/02/12 11:25 AM
Collected:

Project: **123710520**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
P-53A-01	*0018*		10/5/2012	<90 ppm
	Site: TRIM Desc: WHITE COLOUR PAINT			
P-53A-02	*0019*		10/5/2012	13000 ppm
	Site: EXTERIOR WALLS Desc: GREEN COLOUR PAINT			

Kevin Pang
or other approved signatory

Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 10/12/2012 14:56:16

MAIN CENTER

Building 53B – Well 1

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5.0 FINDINGS – BUILDING 53B WELL 2

Building 53B Well 2 was reportedly constructed in 1968.

Stantec understands that the plan for Building 53B Well 2 is demolition.

The results of the assessment for each of the considered hazardous materials within Building 53B Well 2 are provided in the following sub-sections.

NOTE: as no samples were collected as part of assessment activities for this building, floor plan drawings have not been included.

5.1 Asbestos

Suspected ACMs were not observed.

5.2 Lead

Lead is expected to be present in the following materials:

- Solder used on copper domestic pipes
- Caulking on bell fittings for cast iron drainage pipes
- Electrical equipment (i.e. batteries for emergency lighting/signage).

With respect to paint, the paints present on and within the building appeared to be the same as those applied within Building 53A Well 1 – the buildings were of similar construction and era, and the colours used were the same. As such, paints were presumed to be the same.

Based on visual similarity, and on the results obtained from paint samples collected for Building 53A Well 1, the paint presented in Table 53B-5.2.2, below is presumed to be an LCP.

Table 53B-5.2.2: Summary of Identified LCPs
Building 53B Well 2
Pacific Agri-Food Research Centre (Main Centre)

Identified LCP Description	Photo
Green paint on the building's exterior (presumed lead-containing based on Building 53A Well 1 paint sample results – same construction time and materials used). This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	

5.3 Polychlorinated Biphenyls

Fluorescent light fixtures were not observed.

5.4 Mercury

Mercury-containing equipment was not observed.

5.5 Equipment with Radioactive Components

Equipment with radioactive components were not observed.

5.6 Mould

Suspect mould was not observed.

6.0 RECOMMENDATIONS TO ADDRESS IDENTIFIED ISSUES – BUILDING 53B WELL 2

The recommendations pertaining to those hazardous building materials identified to be in non-compliant condition within Building 53B Well 2 are provided in the following sub-sections. General recommendations pertaining to managing identified hazardous building materials in good condition are provided in the main body of this report.

6.1 Asbestos

As ACMs were not identified, no specific recommendations have been developed.

6.2 Lead

For LCPs and other lead-containing materials identified within the building that are to be disturbed and/or removed, ensure compliance with the following:

- The occupational exposure control requirements of BC Reg. 296/97
- The disposal requirements of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88)
- The transportation requirements of the Federal Transportation of Dangerous Goods Regulation.

Corrective action or remedial work on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). Airborne lead dust or fumes should not exceed the BC Reg. 296/97 8-hour Occupational Exposure Limit (OEL) of 0.05 milligram per cubic metre (mg/m^3) during the removal of paints and products containing any concentration of lead. The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust.

6.3 Polychlorinated Biphenyls

PCB-containing items were not identified. No specific recommendations have been developed.

6.4 Mercury

Mercury-containing items were not observed. No specific recommendations have been developed.

6.5 Equipment with Radioactive Components

Equipment with radioactive components was not identified. No specific recommendations have been developed.

6.6 Mould

No suspect mould was observed. No specific recommendations have been developed.

APPENDIX C

Farm 2

FARM 2

Building 40 – Residence

One Team. Infinite Solutions.

Stantec

5.0 FINDINGS – BUILDING 40 RESIDENCE

Building 40 Residence was reportedly constructed in 1901.

Stantec understands that the plan for Building 40 Residence is demolition.

The results of the assessment for each of the considered hazardous materials within Building 40 Residence are provided in the following sub-sections.

Floor plan drawings for Building 40 Residence, which include locations of the samples collected during this assessment, and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.1 Asbestos

Stantec identified and sampled various suspected ACMs, including the following:

- Drywall joint compound
- Floor leveling compound
- Sheet flooring
- Vinyl floor tile
- Wall paper
- Fire stop
- Building paper
- Brick mortar.

38 samples of the above-noted suspected ACMs were collected and submitted to EMSL for analysis of asbestos content and nature. A summary of the sample types, locations and analytical results is presented in Table 40-5.1.1, below. Copies of the certificates of analysis provided by EMSL for the suspected ACM samples submitted are attached at the end of this Appendix.

Table 40-5.1.1: Suspected ACM Sample Collection and Analysis Summary
Building 40 Residence
Pacific Agri-Food Research Centre (Farm 2)

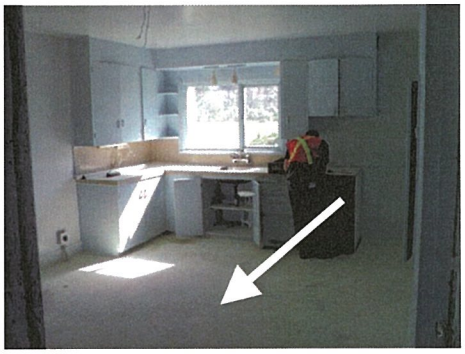
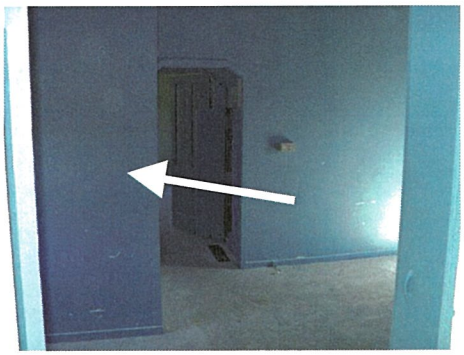
Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-40-WP-01A	Wall paper Floral design	Kitchen Wall	None Detected
A-40-WP-01B	Wall paper Floral design	Kitchen Wall	None Detected
A-40-WP-01C	Wall paper Floral design	Kitchen Wall	None Detected

Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-40-SF-01A	Sheet flooring Beige/white colour	Kitchen Flooring	None Detected
A-40-SF-01B	Sheet flooring Beige/white colour	Kitchen Flooring	None Detected
A-40-SF-01C	Sheet flooring Beige/white colour	Kitchen Flooring	None Detected
A-40-SF-02A	**Sheet flooring Beige pebble pattern**	**Kitchen Flooring (2nd layer)**	**15% Chrysotile**
A-40-SF-02B	**Sheet flooring Beige pebble pattern**	**Kitchen Flooring (2nd layer)**	**Stop Positive**
A-40-SF-02C	**Sheet flooring Beige pebble pattern**	**Kitchen Flooring (2nd layer)**	**Stop Positive**
A-40-SF-03A	Sheet flooring Floral design	Room 5 Flooring	None Detected
A-40-SF-03B	Sheet flooring Floral design	Room 5 Flooring	None Detected
A-40-SF-03C	Sheet flooring Floral design	Room 5 Flooring	None Detected
A-40-SF-04A	Sheet flooring Coloured checker pattern	2nd floor Washroom	None Detected
A-40-SF-04B	Sheet flooring Coloured checker pattern	2nd floor Washroom	None Detected
A-40-SF-04C	Sheet flooring Coloured checker pattern	2nd floor Washroom	None Detected
A-40-SF-05A	Sheet flooring Grey colour	Basement storage area Flooring	None Detected
A-40-SF-05B	Sheet flooring Grey colour	Basement storage area Flooring	None Detected
A-40-SF-05C	Sheet flooring Grey colour	Basement storage area Flooring	None Detected
A-40-FT-01A	Floor tile White with blue/brown smears	Rear entrance foyer Flooring	None Detected
A-40-FT-01B	Floor tile White with blue/brown smears	Rear entrance foyer Flooring	None Detected
A-40-FT-01C	Floor tile White with blue/brown smears	Rear entrance foyer Flooring	None Detected
A-40-FL-01A	Floor levelling compound White colour	Room 2 Flooring (sub-layer)	None Detected

Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-40-FL-01B	Floor levelling compound White colour	Room 2 Flooring (sub-layer)	None Detected
A-40-FL-01C	Floor levelling compound White colour	Room 2 Flooring (sub-layer)	None Detected
A-40-BP-01A	Building paper Light brown colour	Room 2 Behind drywall	None Detected
A-40-BP-01B	Building paper Light brown colour	Room 2 Behind drywall	None Detected
A-40-BP-01C	Building paper Light brown colour	Room 2 Behind drywall	None Detected
A-40-FS-01A	Fire stop Grey colour	Basement On chimney at exhaust pipe	None Detected
A-40-FS-01B	Fire stop Grey colour	Basement On chimney at exhaust pipe	None Detected
A-40-FS-01C	Fire stop Grey colour	Basement On chimney at exhaust pipe	None Detected
A-40-BM-01A	Brick mortar Light grey colour	Room 7 Chimney	None Detected
A-40-BM-01B	Brick mortar Light grey colour	Room 7 Chimney	None Detected
A-40-BM-01C	Brick mortar Light grey colour	Room 7 Chimney	None Detected
A-40-DJC-01A	**Drywall joint compound**	**Kitchen Wall**	**0.75% Chrysotile**
A-40-DJC-01B	**Drywall joint compound**	**Living room Wall**	**0.50% Chrysotile**
A-40-DJC-01C	**Drywall joint compound**	**Kitchen Ceiling**	**1.25% Chrysotile**
A-40-DJC-01D	**Drywall joint compound**	**Room 3 Wall**	**1.00% Chrysotile**
A-40-DJC-01E	**Drywall joint compound**	**Room 4 Wall**	**0.25% Chrysotile**

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the materials presented in Table 40-5.1.2, below were identified as ACMs.

Table 40-5.1.2: Summary of Identified ACMs
Building 40 Residence
Pacific Agri-Food Research Centre (Farm 2)

Identified ACM Description and Condition Information		Photo
Beige pebble pattern sheet flooring – present in the kitchen as a sub-layer.		
Friability	Friable	
Condition	Good	
Access	C (concealed beneath top layer of sheet flooring)	
Drywall joint compound throughout.		
Friability	Non-Friable (Although, drywall joint-fill compound is considered to be non-friable in its undisturbed state, this material can become friable when damaged or during removal)	
Condition	Good	
Access	A	

5.2 Lead

Lead is expected to be present in the following materials:

- Solder used on copper domestic pipes
- Caulking on bell fittings for cast iron drainage pipes
- Electrical equipment (i.e. batteries for emergency lighting/signage).

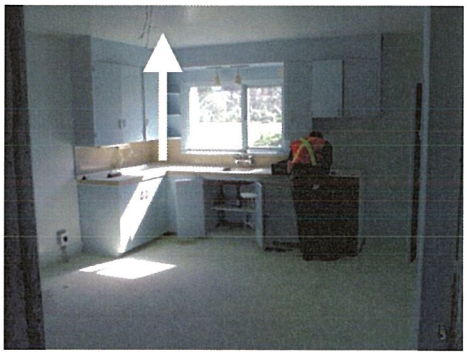
With respect to paint, 11 paint chip samples were obtained, where suspected LCPs were observed. A summary of the sample types, locations and analytical results is presented in Table 40-5.2.1, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP samples submitted is attached to this Appendix.

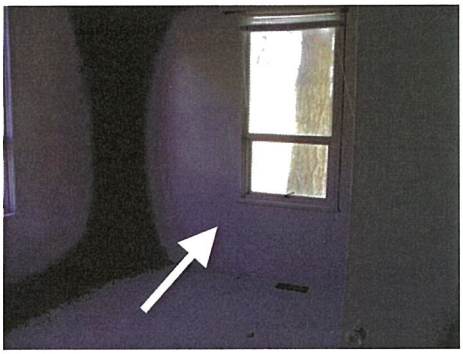
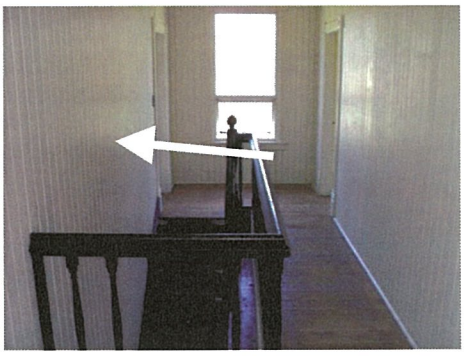
Table 40-5.2.1: Suspected LCP Sample Collection and Analysis Summary
Building 40 Residence
Pacific Agri-Food Research Centre (Farm 2)

Sample No.	Sample Location	Sample Colour	Lab Result (ppm)	Lead Containing (Yes/No)
P-40-01	Living room walls	Blue	<90	No
P-40-02	Rear entrance foyer wall	Dark purple	520	No
P-40-03	Kitchen wall	Light blue	340	No
P-40-04	**Kitchen ceiling**	**White**	**1,600**	**Yes**
P-40-05	**Room 4 walls**	**Pink**	**790**	**Yes**
P-40-06	Room 3 walls	Green	130	No
P-40-07	**2nd floor washroom wall**	**Yellow**	**190,000**	**Yes**
P-40-08	**2nd floor hallway wall**	**White**	**180,000**	**Yes**
P-40-09	**Room 7 floor**	**Grey**	**31,000**	**Yes**
P-40-10	Basement wall	White	<90	No
P-40-11	Exterior trim	White	280	No

Based on our observations and on our interpretations of suspected LCP sample analytical results, the materials presented in Table 40-5.2.2, below were identified as LCPs.

Table 40-5.2.2: Summary of Identified LCPs
Building 40 Residence
Pacific Agri-Food Research Centre (Farm 2)

Identified LCP Description	Photo
White paint on walls and ceilings in various locations throughout. This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	

Identified LCP Description	Photo
Pink paint on walls of room 4 (main floor southeast). This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	
Yellow paint on 2nd floor washroom walls. This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	
White paint on 2nd floor hallway walls. This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	

Identified LCP Description	Photo
Grey paint on floors of room 7 (second floor southwest). This paint was observed to be in good condition (minimal bubbling, flaking or peeling).	

5.3 Polychlorinated Biphenyls

One (1) fluorescent light ballast was observed and was determined, by review of label information, to be non-PCB containing.

5.4 Mercury

One (1) mercury-containing wall-mounted thermostat was observed.

In addition to the above, mercury vapour may be present within fluorescent light tubes throughout.

5.5 Equipment with Radioactive Components

Heat/smoke detection devices suspected to contain radioactive components were observed.

5.6 Mould

No suspect mould was observed.

6.0 RECOMMENDATIONS TO ADDRESS IDENTIFIED ISSUES – BUILDING 40 RESIDENCE

The recommendations pertaining to those hazardous building materials identified to be in non-compliant condition within Building 40 Residence are provided in the following sub-sections. General recommendations pertaining to managing identified hazardous building materials in good condition are provided in the main body of this report.

6.1 Asbestos

ACMs identified within the building as listed in Table 40-5.1.2 should be removed and disposed of in accordance with the requirements of BC Reg. 296/97 prior to demolition activities that may impact them.

If materials that are visually similar to identified ACMs are discovered within the building in locations not outlined in this report, these materials should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

If encountered during demolition activities, any suspected ACMs not accessible during this assessment should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

Ensure asbestos containing waste is handled, stored, and disposed of in accordance with the requirements of the *Federal Transportation of Dangerous Goods Regulation* and the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88).

6.2 Lead

For LCPs and other lead-containing materials identified within the building that are to be disturbed and/or removed, ensure compliance with the following:

- The occupational exposure control requirements of BC Reg. 296/97 including the provisions of the BC Lead Guideline.
- The disposal requirements of the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88).
- The transportation requirements of the *Federal Transportation of Dangerous Goods Regulation*.

Corrective action or remedial work on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). Airborne lead dust or fumes should not exceed the BC Reg. 296/97 8-hour Occupational Exposure Limit (OEL) of 0.05 milligram per cubic metre (mg/m^3) during the removal of paints and products containing any concentration of lead. The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust.

6.3 Polychlorinated Biphenyls

PCB-containing equipment was not identified. No specific recommendations have been developed.

6.4 Mercury

For mercury-containing materials (e.g., thermostats, thermometers, fluorescent light bulbs) that are to be removed, ensure all mercury waste is handled, stored and disposed of in accordance with the requirements of the BC Reg. 63/88 and the *Federal Transportation of Dangerous Goods Regulation*.

6.5 Equipment with Radioactive Components

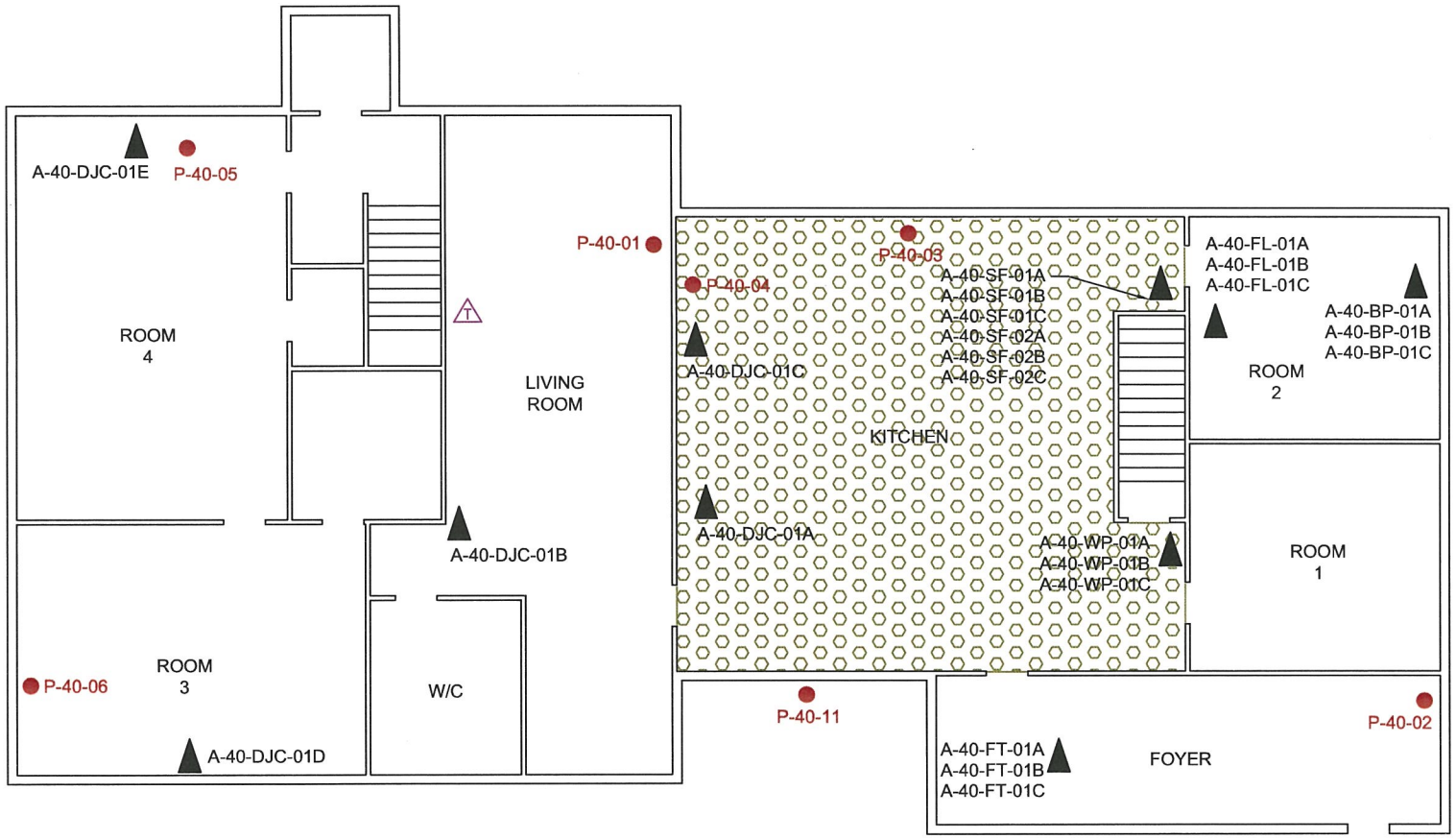
As it could not be determined whether radioactive components were present in the smoke detectors, caution should be taken during removal, and the smoke detectors should be handled as if they contain radioactive components, unless additional information (e.g., labels) proves otherwise.

For identified radioactive components that require removal, these items should be transported and disposed of in accordance with the following:

- *The Federal Transportation of Dangerous Goods Act*
- *The Nuclear Safety and Control Act (1997, c.9), Nuclear Substances and Radiation Devices Regulations (SOR/2000-207*

6.6 Mould

No suspect mould was identified. No specific recommendations have been developed.



MAIN FLOOR

LEGEND

- BULK SAMPLE
- PAINT CHIP SAMPLE
- ASBESTOS-CONTAINING BEIGE SHEET FLOORING (CONCEALED)
- MERCURY-CONTAINING THERMOSTAT

NOTES: **1. DRYWALL JOINT COMPOUND THROUGHOUT IS ASBESTOS-CONTAINING.**
2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 40 RESIDENCE

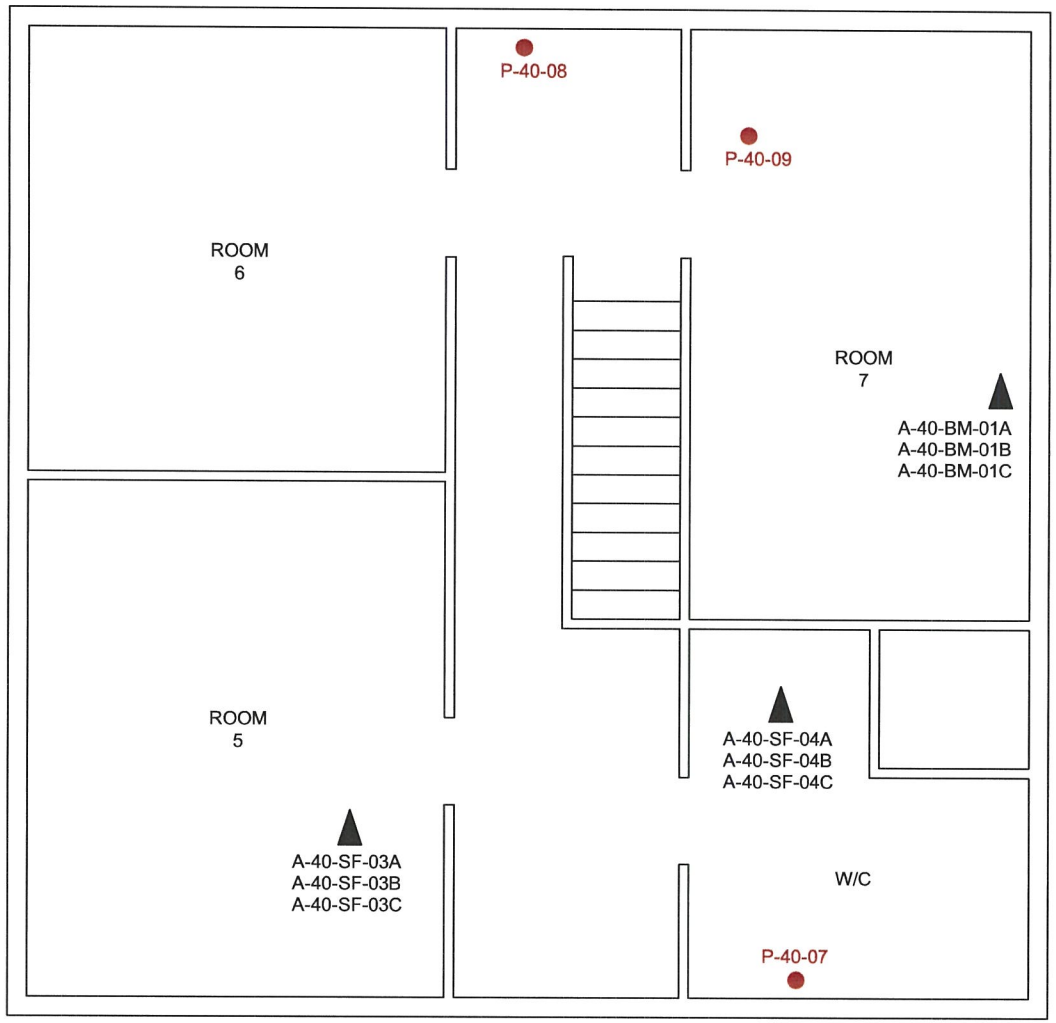
PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/11/20
Dwn. By:	CD CS SL2012110292
App'd By:	SB

Dwg. No.: 1

Stantec



SECOND FLOOR

LEGEND

▲ BULK SAMPLE

● PAINT CHIP SAMPLE

NOTES: **1.DRYWALL JOINT COMPOUND THROUGHOUT IS ASBESTOS-CONTAINING.**
2. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 40 RESIDENCE

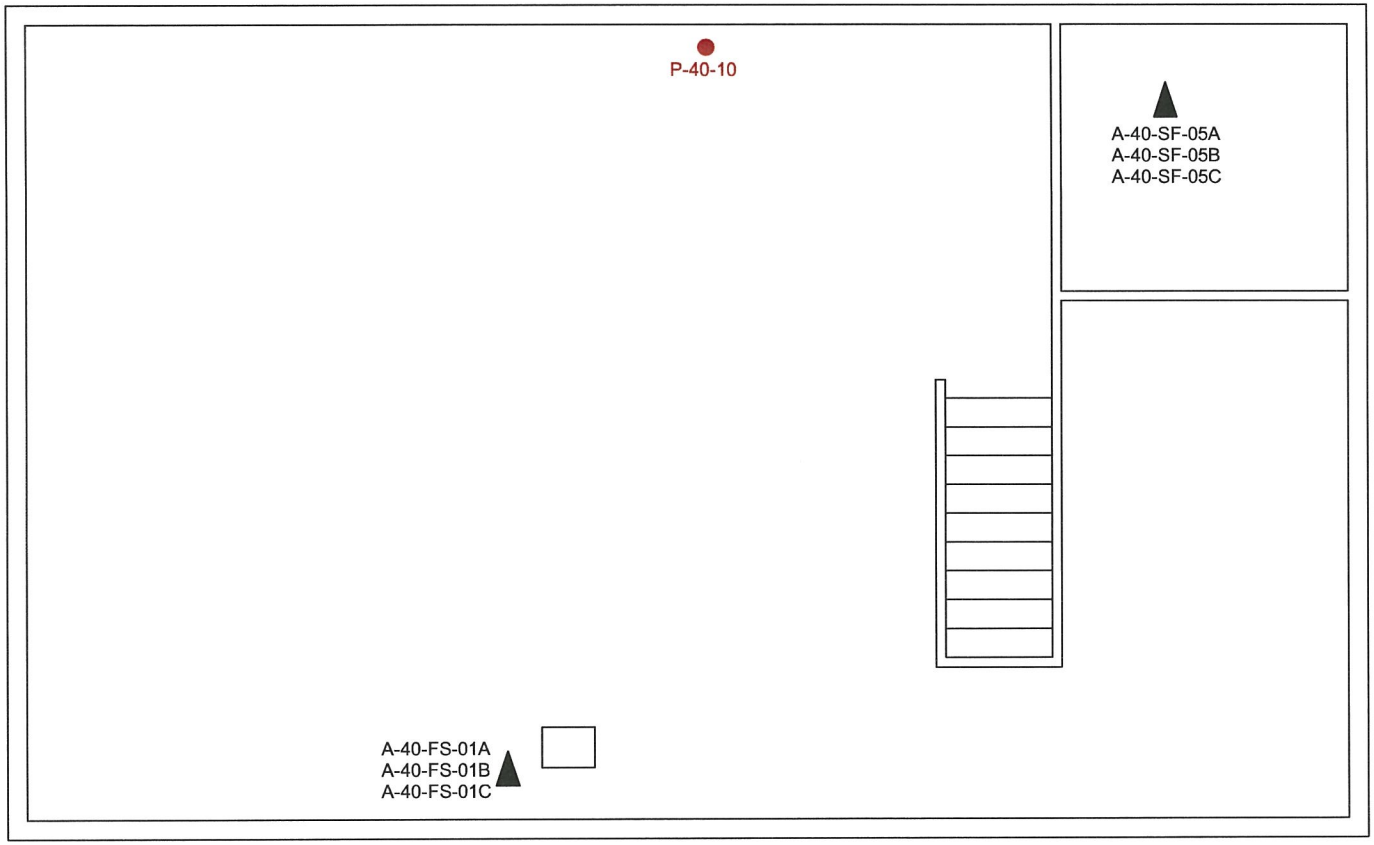
PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/12/04
Dwn. By:	CD CS/DM SL2012120030
App'd By:	SB

Dwg. No.: 2

Stantec



BESEMENT

LEGEND

- BULK SAMPLE
- PAINT CHIP SAMPLE

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FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 40 RESIDENCE

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/11/20
Dwn. By:	CD CS SL2012110294
App'd By:	SB

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Received: 10/01/12 11:51 AM
Analysis Date: 10/6/2012
Collected:

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**% Type**
A-40-WP-01A *551204478-0001*	KITCHEN WALL - WALL PAPER FLORAL DESIGN	White/Blue Fibrous Homogeneous	50%	Cellulose	50%	Non-fibrous (other)	**None Detected**
A-40-WP-01B *551204478-0002*	KITCHEN WALL - WALL PAPER FLORAL DESIGN	White/Blue Fibrous Homogeneous	50%	Cellulose	50%	Non-fibrous (other)	**None Detected**
A-40-WP-01C *551204478-0003*	KITCHEN WALL - WALL PAPER FLORAL DESIGN	Gray Fibrous Homogeneous	50%	Cellulose	50%	Non-fibrous (other)	**None Detected**
A-40-SF-01A *551204478-0004*	KITCHEN FLOORING - SHEET FLOORING BEIGE/WHITE COLOUR	White Fibrous Heterogeneous	20% 5%	Cellulose Glass	75%	Non-fibrous (other)	**None Detected**
A-40-SF-01B *551204478-0005*	KITCHEN FLOORING - SHEET FLOORING BEIGE/WHITE COLOUR	White Fibrous Heterogeneous	20% 5%	Cellulose Glass	75%	Non-fibrous (other)	**None Detected**
A-40-SF-01C *551204478-0006*	KITCHEN FLOORING - SHEET FLOORING BEIGE/WHITE COLOUR	Gray Fibrous Homogeneous	20%	Cellulose	80%	Non-fibrous (other)	**None Detected**

Analyst(s)

Anne Paul (1) *William Nguyen (21)*
Phong Nguyen (9)

Kevin Pang
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872

Initial report from 10/09/2012 16:25:22

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Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos			Asbestos	
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**% Non-Fibrous**	**%**	**Type**
A-40-SF-02A *551204478-0007*	KITCHEN FLOORING (2ND LAYER) - SHEET FLOORING BEIGE PEBBLE PATTERN	Gray Fibrous Heterogeneous			85% Non-fibrous (other)	**15%**	**Chrysotile**
A-40-SF-02B *551204478-0008*	KITCHEN FLOORING (2ND LAYER) - SHEET FLOORING BEIGE PEBBLE PATTERN						**Stop Positive (Not Analyzed)**
A-40-SF-02C *551204478-0009*	KITCHEN FLOORING (2ND LAYER) - SHEET FLOORING BEIGE PEBBLE PATTERN						**Stop Positive (Not Analyzed)**
A-40-SF-03A *551204478-0010*	ROOM 5 FLOORING - SHEET FLOORING FLORAL DESIGN	Tan/Red/Black Non-Fibrous Heterogeneous	25% 5%	Cellulose Synthetic	70% Non-fibrous (other)		**None Detected**
A-40-SF-03B *551204478-0011*	ROOM 5 FLOORING - SHEET FLOORING FLORAL DESIGN	Tan/Red/Black Fibrous Heterogeneous	25% 5%	Cellulose Synthetic	70% Non-fibrous (other)		**None Detected**

Analyst(s)

Anne Paul (1) *William Nguyen (21)*
Phong Nguyen (9)

Kevin Pang
or other approved signatory

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Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**% Type**
A-40-SF-03C *551204478-0012*	ROOM 5 FLOORING - SHEET FLOORING FLORAL DESIGN	Red/Black Fibrous Homogeneous	35%	Cellulose	65%	Non-fibrous (other)	**None Detected**
A-40-SF-04A *551204478-0013*	2ND FLOOR WASHROOM - SHEET FLOORING COLOURED CHECKER PATTERN	Tan/Red/Black Fibrous Heterogeneous	25% 3%	Cellulose Synthetic	72%	Non-fibrous (other)	**None Detected**
A-40-SF-04B *551204478-0014*	2ND FLOOR WASHROOM - SHEET FLOORING COLOURED CHECKER PATTERN	Tan/Red/Black Fibrous Heterogeneous	25% 3%	Cellulose Synthetic	72%	Non-fibrous (other)	**None Detected**
A-40-SF-04C *551204478-0015*	2ND FLOOR WASHROOM - SHEET FLOORING COLOURED CHECKER PATTERN	Black Fibrous Homogeneous	60%	Cellulose	40%	Non-fibrous (other)	**None Detected**

Analyst(s)

Anne Paul (1) *William Nguyen (21)*
Phong Nguyen (9)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872

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Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**%**	**Non-Fibrous**	**% Type**
A-40-SF-05A *551204478-0016*	BASEMENT STORAGE AREA FLOORING - SHEET FLOORING GREY COLOUR	Gray Fibrous Heterogeneous	10% 40%	Cellulose Synthetic	50%	Non-fibrous (other)	**None Detected**
A-40-SF-05B *551204478-0017*	BASEMENT STORAGE AREA FLOORING - SHEET FLOORING GREY COLOUR	Gray Non-Fibrous Heterogeneous	10% 40%	Cellulose Synthetic	50%	Non-fibrous (other)	**None Detected**
A-40-SF-05C *551204478-0018*	BASEMENT STORAGE AREA FLOORING - SHEET FLOORING GREY COLOUR	Gray Fibrous Homogeneous	20% 30%	Synthetic Cellulose	50%	Non-fibrous (other)	**None Detected**
A-40-FT-01A *551204478-0019*	REAR ENTRANCE FOYER FLOORING - FLOOR TILE WHITE WITH BLUE/BROWN SMEARS	Gray Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**

Analyst(s)

Anne Paul (1) *William Nguyen (21)*
Phong Nguyen (9)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872

Initial report from 10/09/2012 16:25:22

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10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
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CustomerPO:	123710520
ProjectID:	

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Received:	10/01/12 11:51 AM
Analysis Date:	10/6/2012
Collected:	

Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-40-FT-01B *551204478-0020*	REAR ENTRANCE FOYER FLOORING - FLOOR TILE WHITE WITH BLUE/BROWN SMEARS	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
A-40-FT-01C *551204478-0021*	REAR ENTRANCE FOYER FLOORING - FLOOR TILE WHITE WITH BLUE/BROWN SMEARS	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
A-40-FL-01A *551204478-0022*	ROOM 2 FLOORING (SUB-LAYER) - FLOOR LEVELING COMPOUND WHITE COLOUR	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-40-FL-01B *551204478-0023*	ROOM 2 FLOORING (SUB-LAYER) - FLOOR LEVELING COMPOUND WHITE COLOUR	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**

Analyst(s)

Anne Paul (1) *William Nguyen (21)*
Phong Nguyen (9)

Kevin Pang
or other approved signatory

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Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
A-40-FL-01C *551204478-0024*	ROOM 2 FLOORING (SUB-LAYER) - FLOOR LEVELING COMPOUND WHITE COLOUR	Gray/Tan Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
			suggest TEM			
A-40-BP-01A *551204478-0025*	ROOM 2 BEHING DRYWALL - BUILDING PAPER LIGHT BROWN COLOUR	Brown Fibrous Homogeneous	90%	Cellulose	10% Non-fibrous (other)	**None Detected**
A-40-BP-01B *551204478-0026*	ROOM 2 BEHING DRYWALL - BUILDING PAPER LIGHT BROWN COLOUR	Brown Fibrous Homogeneous	90%	Cellulose	10% Non-fibrous (other)	**None Detected**
A-40-BP-01C *551204478-0027*	ROOM 2 BEHING DRYWALL - BUILDING PAPER LIGHT BROWN COLOUR	Gray/Tan Fibrous Homogeneous	30%	Cellulose	70% Non-fibrous (other)	**None Detected**
A-40-FS-01A *551204478-0028*	BASEMENT ON CHIMNEY ATEXHAUST PIPE - FIRE STOP GREY COLOUR	Gray Non-Fibrous Heterogeneous			100% Non-fibrous (other)	**None Detected**

Analyst(s)

Anne Paul (1) *William Nguyen (21)*
Phong Nguyen (9)

Kevin Pang
or other approved signatory

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Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-40-FS-01B *551204478-0029*	BASEMENT ON CHIMNEY ATEXHAUST PIPE - FIRE STOP GREY COLOUR	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-40-FS-01C *551204478-0030*	BASEMENT ON CHIMNEY ATEXHAUST PIPE - FIRE STOP GREY COLOUR	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	**None Detected**
A-40-BM-01A *551204478-0031*	ROOM 7 CHIMNEY - BRICK MORTOR LIGHT GREY COLOUR	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-40-BM-01B *551204478-0032*	ROOM 7 CHIMNEY - BRICK MORTOR LIGHT GREY COLOUR	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**
A-40-BM-01C *551204478-0033*	ROOM 7 CHIMNEY - BRICK MORTOR LIGHT GREY COLOUR	Gray Non-Fibrous Heterogeneous		100% Non-fibrous (other)	**None Detected**

Analyst(s)

Anne Paul (1) *William Nguyen (21)*
Phong Nguyen (9)

Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872

Initial report from 10/09/2012 16:25:22

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Received:	10/01/12 11:51 AM
Analysis Date:	10/6/2012
Collected:	

Project: **123710520**

Test Report: Test Report: Asbestos Analysis of Bulk Material via EPA 600/R-93/116 and/or EPA 600/M4-82-020. Quantitation using 400 Point Count Procedure

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-40-DJC-01A *551204478-0034*	KITCHEN WALL - DRYWALL JOINT COMPOUND	Tan Non-Fibrous Heterogeneous		99.25% Non-fibrous (other)	**0.75% Chrysotile**
		The sample group is not homogeneous			
A-40-DJC-01B *551204478-0035*	LIVING ROOM WALL - DRYWALL JOINT COMPOUND	Tan/Blue Non-Fibrous Heterogeneous		99.50% Non-fibrous (other)	**0.50% Chrysotile**
A-40-DJC-01C *551204478-0036*	KITCHEN CEILING - DRYWALL JOINT COMPOUND	Tan Non-Fibrous Heterogeneous		98.75% Non-fibrous (other)	**1.25% Chrysotile**
A-40-DJC-01D *551204478-0037*	ROOM 3 WALL - DRYWALL JOINT COMPOUND	Tan/Green Non-Fibrous Homogeneous		99.00% Non-fibrous (other)	**1.00% Chrysotile**
A-40-DJC-01E *551204478-0038*	ROOM 4 WALL - DRYWALL JOINT COMPOUND	Tan/Green Non-Fibrous Homogeneous		99.75% Non-fibrous (other)	**0.25% Chrysotile**

Analyst(s)

Anne Paul (5)

Kevin Pang
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Initial report from 10/09/2012 16:25:22

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Phone: (604) 696-8272
Fax:
Received: 10/01/12 11:49 AM
Collected:

Project: **123710520**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
P-40-01	*0001*		10/2/2012	<90 ppm
	Site: LIVING ROOM WALLS Desc: BLUE COLOUR PAINT			
P-40-02	*0002*		10/2/2012	520 ppm
	Site: REAR ENTRANCE FOYER WALL Desc: DARK PURPLE COLOUR PAINT			
P-40-03	*0003*		10/2/2012	340 ppm
	Site: KITCHEN WALL Desc: LIGHT BLUE COLOUR PAINT			
P-40-04	*0004*		10/2/2012	1600 ppm
	Site: KITCHEN CEILING Desc: WHITE COLOUR PAINT			
P-40-05	*0005*		10/2/2012	790 ppm
	Site: LIVING ROOM WALLS Desc: PINK COLOUR PAINT			
P-40-06	*0006*		10/2/2012	130 ppm
	Site: LIVING ROOM WALLS Desc: GREEN COLOUR PAINT			
P-40-07	*0007*		10/2/2012	190000 ppm
	Site: 2ND FLOOR WASHROOM WALL Desc: YELLOW COLOUR PAINT			
P-40-08	*0008*		10/2/2012	180000 ppm
	Site: 2ND FLOOR HALLWAY WALL Desc: WHITE COLOUR PAINT			
P-40-09	*0009*		10/2/2012	31000 ppm
	Site: ROOM 7 FLOOR Desc: GREY COLOUR PAINT			
P-40-10	*0010*		10/2/2012	<90 ppm
	Site: BASEMENT WALL Desc: WHITE COLOUR PAINT			
P-40-11	*0011*		10/2/2012	280 ppm
	Site: EXTERIOR TRIM Desc: WHITE COLOUR PAINT			

Kevin Pang
or other approved signatory

Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 10/12/2012 11:37:30

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ProjectID:	

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Phone: (604) 696-8272
Fax:
Received: 10/01/12 11:49 AM
Collected:

Project: **123710520**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*

Kevin Pang
or other approved signatory

Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted.
* slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.
Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 10/12/2012 11:37:30

FARM 2

Building 67 – Storage Garage

One Team. Infinite Solutions.

Stantec

5.0 FINDINGS – BUILDING 67 STORAGE GARAGE

Building 67 Storage Garage was reportedly constructed in 1963.

This building is no longer in use and has collapsed. Stantec understands that the plan for Building 67 Storage Garage is completion of demolition/removal of collapsed building waste.

The results of the assessment for each of the considered hazardous materials within Building 67 Storage Garage are provided in the following sub-sections.

Floor plan drawings for Building 67 Storage Garage, which include locations of the samples collected during this assessment, and locations of identified hazardous building materials (where practical), are attached to this Appendix.

5.1 Asbestos

Stantec identified and sampled various suspected ACMs, including the following:

- Cement paneling
- Roofing material (debris).

6 samples of the above-noted suspected ACMs were collected and submitted to EMSL for analysis of asbestos content and nature. A summary of the sample types, locations and analytical results is presented in Table 67-5.1.1, below. Copies of the certificates of analysis provided by EMSL for the suspected ACM samples submitted are attached at the end of this Appendix.

Table 67-5.1.1: Suspected ACM Sample Collection and Analysis Summary
Building 67 Storage Garage
Pacific Agri-Food Research Centre (Farm 2)

Sample Number	Material Description	Sample Location	PLM Result (% and Type of Asbestos)
A-67-TP-01A	**Cement board**	**Remnant wall**	**15% Chrysotile**
A-67-TP-01B	**Cement board**	**Remnant wall**	**Stop Positive (Not Analyzed)**
A-67-TP-01C	**Cement board**	**Remnant wall**	**Stop Positive (Not Analyzed)**
A-67-RM-01A	Roofing material	Roofing debris on ground	None Detected
A-67-RM-01B	Roofing material	Roofing debris on ground	None Detected
A-67-RM-01C	Roofing material	Roofing debris on ground	None Detected

It should be noted that walls constructed with masonry block, which historically have been found to be filled with asbestos-containing vermiculite insulation, were observed (exterior walls). Several large penetrations in the masonry block were checked for any evidence of vermiculite insulation and none was observed, however, destructive testing should be done prior to renovation/demolition of masonry block walls to confirm whether vermiculite insulation is present.

Based on our observations of building construction (estimated vintage of interior finishes and uniformity of building material use) and on our interpretations of suspected ACM sample analytical results, the materials presented in Table 67-5.1.2, below were identified as ACMs.

Table 67-5.1.2: Summary of Identified ACMs
Building 67 Storage Garage
Pacific Agri-Food Research Centre (Farm 2)

Identified ACM Description and Condition Information		Photo
Cement paneling		
Friability	Non-friable	
Condition	Poor	
Access	B (Abandoned)	

5.2 Lead

Lead is expected to be present in the following materials within Building 67 Storage Garage:

- Solder used on copper domestic pipes
- Caulking on bell fittings for cast iron drainage pipes
- Electrical equipment (i.e. batteries for emergency lighting/signage).

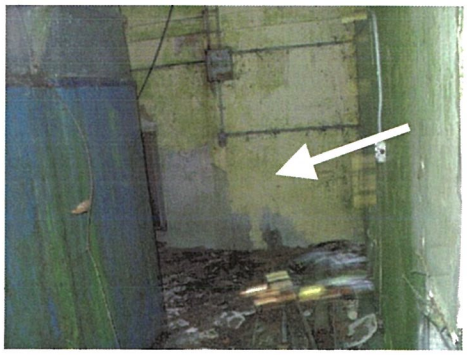
With respect to paint, one (1) paint chip sample was obtained, where a suspected LCP was observed. A summary of the sample type, location and analytical result is presented in Table 67-5.2.1, below. A copy of the certificate of analysis provided by EMSL for the suspected LCP sample submitted is attached to this Appendix.

Table 67-5.2.1: Suspected LCP Sample Collection and Analysis Summary
Building 67 Storage Garage
Pacific Agri-Food Research Centre (Farm 2)

Sample No.	Sample Location	Sample Colour	Lab Result (ppm)	Lead Containing (Yes/No)
P-67-01	Remnant wall area	White (green and orange layers)	71,000	Yes

Based on our observations and on our interpretations of suspected LCP sample analytical results, the materials presented in Table 67-5.2.2, below were identified as LCPs.

Table 67-5.2.2: Summary of Identified LCPs
Building 67 Storage Garage
Pacific Agri-Food Research Centre (Farm 2)

Identified LCP Description	Photo
White (green and orange layers) paint on remnant wall area. This paint was observed to be in poor condition (flaking or peeling).	

5.3 Polychlorinated Biphenyls

Fluorescent light fixtures were not observed.

5.4 Mercury

Mercury-containing items were not observed.

5.5 Equipment with Radioactive Components

Equipment suspected to contain radioactive components was not observed.

5.6 Mould

As the building is abandoned and collapsed, most surfaces were observed to be moist with suspected mould growth.

6.0 RECOMMENDATIONS TO ADDRESS IDENTIFIED ISSUES – BUILDING 67 STORAGE GARAGE

The recommendations pertaining to those hazardous building materials identified to be in non-compliant condition within Building 67 Storage Garage are provided in the following sub-sections. General recommendations pertaining to managing identified hazardous building materials in good condition are provided in the main body of this report.

6.1 Asbestos

ACMs identified within the building as listed in Table 67-5.1.2 should be removed and disposed of in accordance with the requirements of BC Reg. 296/97 prior to activities that may impact them.

If materials that are visually similar to identified ACMs are discovered within the building in locations not outlined in this report, these materials should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

If encountered during cleanup and disposal activities, any suspected ACMs not accessible during this assessment should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

Ensure asbestos containing waste is handled, stored, and disposed of in accordance with the requirements of the *Federal Transportation of Dangerous Goods Regulation* and the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88).

6.2 Lead

For LCPs and other lead-containing materials identified within the building that are to be disturbed and/or removed, ensure compliance with the following:

- The occupational exposure control requirements of BC Reg. 296/97 including the provisions of the BC Lead Guideline
- The disposal requirements of the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88)
- The transportation requirements of the Federal Transportation of Dangerous Goods Regulation.

Cleanup and disposal on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). Airborne lead dust or fumes should not exceed the BC Reg. 296/97 8-hour Occupational Exposure Limit (OEL) of 0.05 milligram per cubic metre (mg/m^3) during the removal of paints and products containing any concentration of lead. The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust.

6.3 Polychlorinated Biphenyls

PCB-containing equipment was not identified. No specific recommendations have been developed.

6.4 Mercury

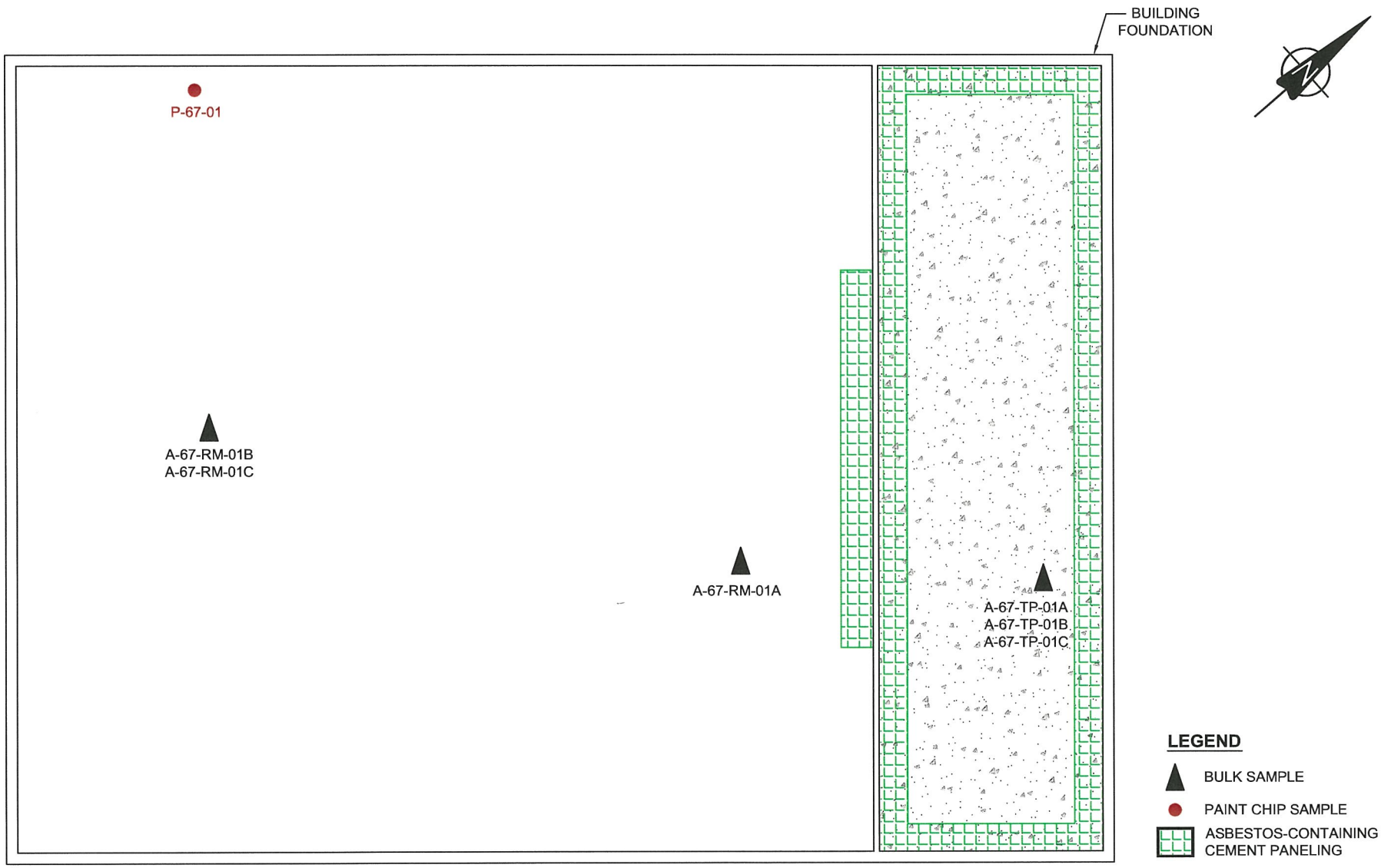
Mercury-containing items that would require action were not observed. No specific recommendations have been developed.

6.5 Equipment with Radioactive Components

Equipment suspected to contain radioactive components was not observed. No specific recommendations have been developed.

6.6 Mould

Stantec recommends that when cleanup and disposal of the building proceeds, due to the suspected presence of mold on building materials, and if those impacted materials are to be removed by hand, workers should be notified of the presence of mold-impacted building materials and be provided with respiratory protection and/or other personal protective equipment (PPE) as deemed necessary for the work that they will be conducting. Protective equipment required for handling of asbestos-containing materials will be sufficient in protecting workers from exposure to mould.



NOTE: THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

FLOOR PLAN SHOWING HAZARDOUS MATERIALS AND BULK SAMPLE LOCATIONS

BUILDING 67 STORAGE GARAGE

PACIFIC AGRI-FOOD RESEARCH CENTRE AND SURROUNDING AREA BUILDINGS, AGASSIZ AND ABBOTSFORD (CLEARBROOK), BC

Client: AGRICULTURE AND AGRI-FOOD CANADA

Project No.:	123710520
Scale:	N.T.S.
Date:	12/12/04
Dwn. By:	CD CS/DM SL2012120031
App'd By:	SB

Dwg. No.: 1

Stantec

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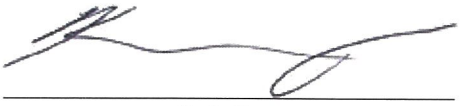
Project: **123710520**

Test Report: Polarized Light Microscopy (PLM) Performed by Modified NIOSH Method 9002, Issue 2

			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
A-67-TP-01A *551204478-0045*	REMNANT WALL - CEMENT BOARD	Gray Fibrous Heterogeneous			85% Non-fibrous (other)	**15% Chrysotile**
A-67-TP-01B *551204478-0046*	REMNANT WALL - CEMENT BOARD					**Stop Positive (Not Analyzed)**
A-67-TP-01C *551204478-0047*	REMNANT WALL - CEMENT BOARD					**Stop Positive (Not Analyzed)**
A-67-RM-01A *551204478-0048*	ROOFING DEBRIS ON GROUND - ROOFING MATERIAL	Black Fibrous Homogeneous	10%	Cellulose	90% Non-fibrous (other)	**None Detected**
A-67-RM-01B *551204478-0049*	ROOFING DEBRIS ON GROUND - ROOFING MATERIAL	Black Fibrous Homogeneous	10%	Cellulose	90% Non-fibrous (other)	**None Detected**
A-67-RM-01C *551204478-0050*	ROOFING DEBRIS ON GROUND - ROOFING MATERIAL	Black Non-Fibrous Heterogeneous	10%	Cellulose	90% Non-fibrous (other)	**None Detected**

Analyst(s)

Anne Paul (1)
William Nguyen (3)



Kevin Pang
or other approved signatory

Disclaimers: This report format for the NIOSH 9002 method has been modified to report discreet asbestos concentrations instead of ranges. PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872

Initial report from 10/09/2012 16:28:08

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.emsl.com torontolab@emsl.com

EMSL Canada Or	551204451
CustomerID:	55JACQ30L
CustomerPO:	123710520
ProjectID:	

Attn: **Zack Kranjec**
Stantec Consulting, Ltd.
1100- 111 Dunsmuir Street
Vancouver, BC V6B 6A3

Phone: (604) 696-8272
Fax:
Received: 10/01/12 11:49 AM
Collected:

Project: **123710520**

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

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
P-67-01	*0019*		10/2/2012	71000 ppm
	Site: REMNANT WALL AREA			
	Desc: WHITE COLOUR PAINT			

Kevin Pang
or other approved signatory

Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 10/12/2012 11:40:31

Stantec Consulting Ltd.
1100 - 111 Dunsmuir Street
Vancouver BC V6B 6A3
Tel: (604) 696-8000
Fax: (604) 696-8100

October 15, 2013
Project No.: 1156–13249

Attention: Amy Moizumi
Environmental Services, Pacific Region
219 – 800 Burrard Street
Vancouver, BC V6Z 0B9

VIA EMAIL: Amy.Moizumi@pwgsc.gc.ca

Dear Ms. Moizumi,

Reference: Pre-Demolition Hazardous Building Materials Assessment Pacific Agri-Food Research Centre, Agassiz, British Columbia
Addendum #1–Supplemental Sampling (Asbestos and Lead Leachate)
Buildings 6, 6A, 40, 53, 53A, 53B and 67

1.0 Introduction

Stantec Consulting Ltd. (Stantec) was retained by Public Works and Government Services Canada (PWGSC) to conduct supplemental sampling of additionally identified suspected asbestos-containing materials (ACM) and previously identified lead-containing paints (LCPs–for leachate analysis) prior to demolition activities pertaining to Buildings 6, 6A, 40, 53, 53A, 53B and 67 (subject buildings) at the Pacific Agri-Food Research Centre (the Project Site) in Agassiz, BC.

The sampling and analysis of additionally identified suspected ACMs was conducted to meet the requirements of the Canada Labour Code Part II–Canada Occupational Health and Safety Regulations (Canada Labour Code), the current version of British Columbia's Occupational Health and Safety Regulation (BC OH&S Reg.) and to provide supplemental information in support of tendering hazardous materials abatement work within the subject buildings.

The sampling of materials with previously identified LCPs for leachate analysis was conducted to meet requirements of the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88), prior to the removal and disposal of building materials with LCPs from the subject buildings, which may occur during either hazardous building materials abatement or building demolition (currently scheduled to occur separately).

The information provided herein is intended to be read as an Addendum to the following report:

- Stantec Report No. 123710520 entitled "Hazardous Building Materials Assessments; Buildings of the Pacific Agri-Food Research Centre, Agassiz and Abbotsford (Clearbrook), BC" dated January, 2013 (Initial Assessment)

Reference: Pre-Demolition Hazardous Building Materials Assessment Pacific Agri-Food Research Centre, Agassiz, British Columbia
Addendum #1–Supplemental Sampling (Asbestos and Lead Leachate)
Buildings 6, 6A, 40, 53, 53A, 53B and 67

Site work associated with this supplemental report was completed within the subject buildings on September 13 and October 8, 2013.

2.0 Background

As indicated in the Initial Assessment Report, the paints on various surfaces throughout the subject buildings were identified to be lead-containing. In support of demolition of the subject buildings, and to address questions pertaining to the options for disposal of materials with lead-containing paint and/or whether it would make sense to remove some of those materials during the abatement phase of the project (which is currently scheduled to occur as a separate phase/at a separate time than demolition activities), Stantec was retained to conduct sampling of identified LCPs for leachate analysis, which would assist in determining options for abatement and/or disposal in accordance with applicable provincial waste regulations.

3.0 Scope of Work

Stantec conducted the following scope of work to provide additional information pertaining to ACMs and LCPs within the subject buildings:

- Review of each of the subject buildings for concealed materials that could not be assessed/sampled during the Initial Assessment, due to occupancy issues (where applicable)
- Collection of bulk samples of suspected asbestos-containing cement board and exterior window caulking previously concealed during the Initial Assessment for submission to an independent laboratory for analysis of the amount and type of asbestos present (if any).
- Collection of bulk samples of building materials painted with previously identified LCPs. Samples included the paint and substrate, and were collected in a form presumed to be representative of waste generated during demolition.
- Submission of bulk paint/substrate samples to an independent laboratory for lead leachate analysis.
- Evaluation and interpretation of results.

4.0 Methodology

The site work associated with this supplemental assessment was conducted in accordance with the requirements of the Canada Labour Code, BC Reg. 296/97 and Stantec's Safe Work Practices.

4.1 SUSPECTED ACM SAMPLING AND ANALYSIS

Samples of previously concealed suspected asbestos-containing cement board and exterior window caulking were collected and submitted to EMSL Canada Inc. (EMSL) in Mississauga, Ontario for analysis of asbestos

content using Polarized Light Microscopy (PLM) with dispersion staining, in accordance with the United States Environmental Protection Agency (EPA) 600/R-93/116 method.

EMSL's analytical laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

4.2 LEACHATE SAMPLING AND ANALYSIS

According to the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88), lead waste may be considered a toxic leachate (and require special disposal) if lead is in a dispersible form and its leachate contains greater than 5.0 milligrams per litre (mg/L) lead.

Based on the above, bulk samples of materials coated with identified LCPs were collected from the subject buildings, each containing over 50 grams in weight. Samples were placed into separate labeled plastic bags that were sealed and submitted to EMSL. Leachate analysis was conducted by EMSL through Toxicity Characteristic Leaching Procedure (TCLP), using US EPA Method SW846, 1311/7420.

EMSL's analytical laboratory is accredited by the American Industrial Hygiene Association (AIHA) Environmental Lead Laboratory Approval Program.

It should be noted that two samples for lead leachate analysis were collected from paints for which total lead content analysis had not yet been conducted (Samples 40-LS-06: green paint concealed behind walls on the main floor; and 40-LS-07: green paint on exterior window trim of basement windows). Based on the applications of these paint (concealed walls; exterior application), their apparent vintage, and on a review of the results from other paints on this building, they were (and should continue to be) presumed to contain >600 ppm lead, and were analysed for leachable lead content only.

5.0 Limitations

Limitations associated with this addendum are generally the same as those indicated in the Initial Assessment. Additional information regarding limitations is included below.

5.1 SUSPECTED ACM SAMPLING AND ANALYSIS

This report reflects the observations made within accessible and accessed areas of the subject buildings, and the results of analyses performed on the specific materials sampled during the additional assessment activities indicated herein, which are to be considered supplemental to the activities outlined in the Initial Assessment. Analytical results reflect the sampled materials at the specific sample locations, as stated herein.

5.2 LEACHATE SAMPLING AND ANALYSIS

Leachate sampling and analysis was conducted only pertaining to LCPs that were previously identified through the Initial Assessment as well as two additional presumed LCPs, and as indicated in this report.

Sampling for analysis of lead leachate was conducted such that building material samples were collected in a form presumed to be representative of waste generated during demolition. The lead leachate samples are meant to represent the general waste that would be created when painted surfaces are demolished, without having paint removed. Although attempts were made to be representative of demolition waste, actual demolition processes may create different waste streams which would yield different results, if supplemental testing was conducted.

6.0 Findings

6.1 SUSPECTED ACM SAMPLING AND ANALYSIS

Four (4) samples of previously concealed suspected asbestos-containing cement board and exterior window caulking present at the Building 40 - Residence were collected and submitted to EMSL for analysis of asbestos content and nature. A summary of the sample types, locations and analytical results is presented in Table 6.1, below. A copy of the certificates of analysis provided by EMSL for the sample submitted is provided in **Appendix A.**

Table 6.1: Suspected ACM Sample Collection and Analysis Summary Pacific Agri-Food Research Centre, Agassiz, British Columbia Buildings 6, 6A, 40, 53, 53A, 53B and 67

Sample Number	Material Description	Sample Location	Result (% Asbestos)
40-TP-01	Cement Board	Building 40 Residence–East wall in kitchen	15% Chrysotile
40-CAU-01A	Window caulking, grey colour	Building 40 Residence–Exterior basement windows	None Detected
40-CAU-01B	Window caulking, grey colour	Building 40 Residence–Exterior basement windows	None Detected
40-CAU-01C	Window caulking, grey colour	Building 40 Residence–Exterior basement windows	None Detected

Reference: Pre-Demolition Hazardous Building Materials Assessment Pacific Agri-Food Research Centre, Agassiz, British Columbia
Addendum #1–Supplemental Sampling (Asbestos and Lead Leachate)
Buildings 6, 6A, 40, 53, 53A, 53B and 67

As outlined in the summary table above, analytical results indicate that the cement board, which is a **non-friable** material and was observed to be in good condition, is asbestos-containing (**15 percent Chrysotile asbestos** detected). No asbestos was detected in the window caulking.

The asbestos-containing cement board material was present on the east wall in the kitchen, and comprised a total of 50 square feet of material (photo below - highlighted area showing ACM cement board on east wall).

6.2 LEACHATE SAMPLING AND ANALYSIS

Twelve samples of the previously identified materials coated with LCPs and two samples of materials coated additional presumed LCPs were collected from the subject buildings and submitted to EMSL for analysis of leachable lead content. A summary of the sample types, locations and analytical results is presented in Table 6.2, below. A copy of the certificate of analysis provided by EMSL for the samples submitted is included in **Appendix B**.

Table 6.2: Leachate Sample Collection and Analysis Summary
Pacific Agri-Food Research Centre, Agassiz, British Columbia
Buildings 6, 6A, 40, 53, 53A, 53B and 67

Sample Number	Material Description	Paint Colour	Result (mg/L Leachable Lead)	Potential Lead Leachable Waste?
6-LS-01	Building 6 Residence–Interior walls	White	2.6	No
6-LS-02	Building 6 Residence–Lower floor stairwell	Grey	2.7	No
6-LS-03	Building 6 Residence–Exterior trim	White	2.9	No
6A-LS-01	Building 6A Garage–Exterior siding/trim	White	<0.4	No

Reference: Pre-Demolition Hazardous Building Materials Assessment Pacific Agri-Food Research Centre, Agassiz, British Columbia
Addendum #1–Supplemental Sampling (Asbestos and Lead Leachate)
Buildings 6, 6A, 40, 53, 53A, 53B and 67

Sample Number	Material Description	Paint Colour	Result (mg/L Leachable Lead)	Potential Lead Leachable Waste?
53-LS-01	Building 53 Water Supply–Exterior trim	White	4.1	No
53-LS-02	Building 53 Water Supply–Exterior siding	Green	<0.4	No
67-LS-01	Building 67 Storage Garage–Remnant walls/ceiling	White (mixed layers)	<0.4	No
40-LS-01	Building 40 Residence–Kitchen ceiling	White	<0.4	No
40-LS-02	Building 40 Residence–walls of room 4 (main floor southeast)	Pink	<0.4	No
40-LS-03	Building 40 Residence–2nd floor washroom walls	Yellow	0.96	No
40-LS-04	**Building 40 Residence–2nd floor hallway walls/trim**	**White**	**51**	**Yes**
40-LS-05	**Building 40 Residence–Floor of room 7 (2nd floor southwest)**	**Grey**	**13**	**Yes**
40-LS-06	**Building 40 Residence–Present behind walls of room 4 (main floor southeast) and presumed to be concealed in other rooms areas. NOTE: Presumed lead content of > 600 ppm lead.**	**Green**	**20**	**Yes**
40-LS-07	**Building 40 Residence – Present around exterior basement windows. NOTE: Presumed lead content of > 600 ppm lead.**	**Green**	**11**	**Yes**

It should be noted that lead leachate samples were collected from Building 53 (Water Supply). Buildings 53, 53A and 53B were all constructed in 1968, are of similar construction and with similar paint finishes. Therefore, lead leachate samples collected from Building 53 were deemed to be representative of the materials present at Buildings 53A and 53B. As per the summary table above (samples 53-LS-01 and 53-LS-02), the materials (paint and substrate, in a form deemed representative of waste to be generated during demolition) from Building 53 (as well as 53A and 53B) are not considered to contain lead in dispersible form such that leachate contains greater than 5.0 milligrams per litre (mg/L) lead. As such, there are no special disposal or transportation requirements for the waste, if landfilled

As outlined in the summary table above, analytical results indicate that the following materials tested contain lead in a dispersible form such that its leachate contains greater than 5.0 milligrams per litre (mg/L) lead:

- Building 40 Residence–2nd floor hallway–Wood walls/trim coated with white colour paint

Reference: Pre-Demolition Hazardous Building Materials Assessment Pacific Agri-Food Research Centre, Agassiz, British Columbia
Addendum #1–Supplemental Sampling (Asbestos and Lead Leachate)
Buildings 6, 6A, 40, 53, 53A, 53B and 67

- Building 40 Residence–2nd floor room 7–Wood floor coated with grey colour paint
- Building 40 Residence–Main floor southeast, behind drywall walls in room 4–Wood walls coated with green colour paint. This material is present behind drywall walls finished with asbestos-containing joint compound.
- Building 40 Residence – Exterior basement windows – Wood window trim coated with green colour paint.

7.0 Conclusions and Recommendations

The general recommendations indicated in the Initial Assessment should prevail. Additional and/or material-specific recommendations to consider in addition to those made in the Initial Assessment are summarized below, along with conclusions about the additional identified hazardous building materials.

7.1 SUSPECTED ACM SAMPLING AND ANALYSIS

Asbestos-containing cement board materials (approximately 50 square feet) were identified on the east wall in the kitchen of Building 40 (**15 percent Chrysotile asbestos** detected). Prior to the initiation of activities that would disturb this material, it must be removed and disposed of in accordance with the requirements of BC Reg. 296/97, by an experienced asbestos abatement contractor.

If encountered during demolition activities, any suspected ACMs not accessible and/or identified during this assessment or the Initial Assessment should be considered as asbestos-containing and handled as such, unless proven otherwise, through analytical testing.

Ensure all asbestos containing waste is handled, stored, and disposed of in accordance with the requirements of BC Reg. 63/88 and the Transportation of Dangerous Goods Regulation.

7.2 LEACHATE SAMPLING AND ANALYSIS

The following waste materials will require special disposal according to the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88):

- Building 40 Residence–2nd floor hallway–Wood walls/trim coated with white colour paint
- Building 40 Residence–2nd floor room 7–Wood floor coated with grey colour paint
- Building 40 Residence–Main floor southeast, behind drywall walls in room 4–Wood walls coated with green colour paint. This material is present behind drywall walls finished with asbestos-containing joint compound.
- Building 40 Residence – Exterior basement windows – Wood window trim coated with green colour paint

Reference: Pre-Demolition Hazardous Building Materials Assessment Pacific Agri-Food Research Centre, Agassiz, British Columbia
Addendum #1–Supplemental Sampling (Asbestos and Lead Leachate)
Buildings 6, 6A, 40, 53, 53A, 53B and 67

As the above-noted leachable materials are likely not problematic to remove and separate for special disposal during the demolition phase, and as they are not asbestos-containing or otherwise contaminated with hazardous building materials, removal during the abatement phase of the project is not necessary.

With the exception of the leachable materials listed above, the remaining materials sampled can be disposed of as regular demolition waste along with all other waste materials destined for landfill in accordance with the following:

- The disposal requirements of BC Reg. 63/88
- The transportation requirements of the Federal *Transportation of Dangerous Goods Regulation*

Lastly, and as indicated in the Initial Assessment, it should be noted that destructive action or remedial work on paint applications containing any concentration of lead should be undertaken in a manner so as to avoid generating fine particulate matter or dust (i.e., avoid sanding). Airborne lead dust or fumes should not exceed the BC Reg. 296/97 8-hour Occupational Exposure Limit (OEL) of 0.05 milligram per cubic metre (mg/m^3) during the removal of paints and products containing any concentration of lead. The use of personal protective equipment is recommended to reduce the potential for over-exposure to lead dust. This provision should be communicated for both the abatement and demolition phases of the work, as affected materials will be disturbed during both phases.

8.0 Closure

This report has been prepared by Stantec Consulting Ltd. for the sole benefit of Public Works and Government Services Canada and Agriculture and Agri-Food Canada. This report may not be relied upon by any other person or entity without the express written consent of Stantec Consulting Ltd. and Public Works and Government Services Canada and Agriculture and Agri-Food Canada.

Any uses that a third party makes of this report, or any reliance on decisions to be made based on it, are the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The conclusions presented represent the best judgment of the assessor based on current environmental standards and the site conditions observed on the date cited within this report. This report is based on, and limited by, circumstances and conditions stated herein, and on information available at the time of preparation of the report. Due to the limited nature of the investigation and the limited data available, Stantec Consulting Ltd. cannot warrant against undiscovered environmental liabilities. It is possible that additional, concealed hazardous materials may become evident during demolition activities within the subject buildings.

Reference: Pre-Demolition Hazardous Building Materials Assessment Pacific Agri-Food Research Centre, Agassiz, British Columbia
Addendum #1–Supplemental Sampling (Asbestos and Lead Leachate)
Buildings 6, 6A, 40, 53, 53A, 53B and 67

The conclusions presented represent the best judgment of the assessor based on current environmental standards and the site conditions observed on the date cited within this report. This report is based on, and limited by, circumstances and conditions stated herein, and on information available at the time of preparation of the report. Due to the limited nature of the investigation and the limited data available, Stantec Consulting Ltd. cannot warrant against undiscovered environmental liabilities. It is possible that additional, concealed hazardous materials may become evident during demolition activities within the subject buildings.

If any conditions become apparent that differ significantly from our understanding of conditions as presented in this report, we request that we be notified immediately to reassess the conclusions provided herein.

We trust that the report meets your current requirements. Should you have any questions or concerns regarding the above, please do not hesitate to contact the undersigned.

Regards,

STANTEC CONSULTING LTD.

Zack Kranjec, Dipl. T.
Report Author
Integrated Asset Management Solutions

Reviewed by:

Sean Brigden, B.Sc., P.B.Dipl.
Project Manager
Integrated Asset Management Solutions

Appendix A: Certificates of Analysis—Suspected ACM Bulk Samples
Appendix B: Certificates of Analysis—Lead Leachate Samples

kb \\cd1200-f03\workgroup\1156\active\115613249\report\leachate_addendum\final_20131015\rpt_115613249_lead_leachate_20131015_final.docx

Appendix A Certificates of Analysis—Suspected ACM Bulk Samples

EMSL Canada Inc.

10 Falconer Drive, Unit #3 Mississauga, ON L5N 3L8
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order: 551306423
Customer ID: 55JACQ30L
Customer PO: 115613249
Project ID:

Attn: Zack Kranjec
Stantec Consulting, Ltd.
1100- 111 Dunsmuir Street
Vancouver, BC V6B 6A3

Phone: (604) 696-8272
Fax:
Collected:
Received: 9/17/2013
Analyzed: 9/20/2013

Proj: 115613249

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 40-TP-01 ***Lab Sample ID:*** **551306423-0001**

Sample Description: TRANSITE BOARD

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	9/20/2013	Gray	0%	85%	**15% Chrysotile**	

Analyst(s)

Arabee Sathiaseelan PLM (1)

Kevin Pang
or other Approved Signatory

Any questions please contact Kevin Pang.

Initial report from: 09/23/201321:59:43

EMSL Canada Inc.
10 Falconer Drive, Unit #3 Mississauga, ON L5N 3L8
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.EMSL.com / torontolab@emsl.com

EMSL Canada Order 551307063
Customer ID: 55JACQ30L
Customer PO: 115613249
Project ID:

Attn: Zack Kranjec
Stantec Consulting, Ltd.
1100- 111 Dunsmuir Street
Vancouver, BC V6B 6A3

Phone: (604) 696-8272
Fax:
Collected:
Received: 10/09/2013
Analyzed: 10/10/2013

Proj: 115613249 TASK 200

Test Report: Asbestos Analysis in Bulk Material for Occupational Health and Safety British Columbia Regulation 188/2011 via EPA 600/R-93/116 Method

Client Sample ID: 40-CAU-01A ***Lab Sample ID:*** **551307063-0001**

Sample Description: BUILDING 40/EXTERIOR WINDOW CAULKING

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/09/2013	Gray	0%	100%	None Detected	

Client Sample ID: 40-CAU-01B ***Lab Sample ID:*** **551307063-0002**

Sample Description: BUILDING 40/EXTERIOR WINDOW CAULKING

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/09/2013	Gray	0%	100%	None Detected	

Client Sample ID: 40-CAU-01C ***Lab Sample ID:*** **551307063-0003**

Sample Description: BUILDING 40/EXTERIOR WINDOW CAULKING

TEST	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos	Comment
PLM	10/10/2013	Gray/Green	0%	100%	None Detected	

Analyst(s)

Arabee Sathiaseelan	PLM	(1)
Jon Delos Santos	PLM	(2)

Kevin Pang
or other Approved Signatory

Any questions please contact Kevin Pang.

Initial report from: 10/10/201309:38:26

Appendix B Certificates of Analysis—Lead Leachate Samples

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
Phone/Fax: 289-997-4602 / (289) 997-4607
http://www.EMSL.com torontolab@emsl.com

EMSL Canada Or	551306420
CustomerID:	55JACQ30L
CustomerPO:	115613249
ProjectID:	

Attn: **Zack Kranjec**
Stantec Consulting, Ltd.
1100- 111 Dunsmuir Street
Vancouver, BC V6B 6A3

Phone: (604) 696-8272
Fax:
Received: 09/18/13 11:02 AM
Collected: 9/13/2013

Project: **115613249**

Test Report: Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
6-LS-01	*0001*	9/13/2013	9/24/2013	2.6 mg/L
	Site: WHITE PAINT-WOOD			
6-LS-02	*0002*	9/13/2013	9/24/2013	2.7 mg/L
	Site: GREY PAINT-WOOD			
6-LS-03	*0003*	9/13/2013	9/24/2013	2.9 mg/L
	Site: WHITE PAINT-WOOD			
6A-LS-01	*0004*	9/13/2013	9/24/2013	<0.40 mg/L
	Site: WHITE PAINT-WOOD			
53-LS-01	*0005*	9/13/2013	9/24/2013	4.1 mg/L
	Site: WHITE PAINT-WOOD			
53-LS-02	*0006*	9/13/2013	9/24/2013	<0.40 mg/L
	Site: GREEN PAINT-METAL			
67-LS-01	*0007*	9/13/2013	9/24/2013	<0.40 mg/L
	Site: MIXED PAINT LAYERS-WOOD			
40-LS-01	*0008*	9/13/2013	9/24/2013	<0.40 mg/L
	Site: WHITE PAINT-WOOD			
40-LS-02	*0009*	9/13/2013	9/24/2013	<0.40 mg/L
	Site: PINK PAINT-DRYWALL			
40-LS-03	*0010*	9/13/2013	9/24/2013	0.96 mg/L
	Site: YELLOW PAINT-WOOD			
40-LS-04	*0011*	9/13/2013	9/24/2013	51 mg/L
	Site: WHITE PAINT-WOOD			
40-LS-05	*0012*	9/13/2013	9/24/2013	13 mg/L
	Site: GREY PAINT-WOOD			
40-LS-06	*0013*	9/13/2013	9/24/2013	20 mg/L
	Site: GREEN PAINT-WOOD			

Kevin Pang
or other approved signatory

The test results contained within this report meet the requirements of NELAC unless otherwise noted. This report relates only to those items tested. Samples received in good condition unless otherwise noted. Quality Control Data associated with this sample set is within acceptable limits, unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367

Initial report from 09/24/2013 16:39:09

EMSL Canada Inc.
10 Falconer Drive, Unit #3, Mississauga, ON L5N 3L8
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http://www.EMSL.com torontolab@emsl.com

EMSL Canada Or	551307058
CustomerID:	55JACQ30L
CustomerPO:	115613249
ProjectID:	

Attn: **Zack Kranjec**
Stantec Consulting, Ltd.
1100- 111 Dunsmuir Street
Vancouver, BC V6B 6A3

Phone: (604) 696-8272
Fax:
Received: 10/10/13 11:31 AM
Collected: 10/8/2013

Project: **115613249**

Test Report: Toxicity Characteristic Leaching Procedure (SW846, 1311/7420)

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Lead Concentration*
40-LS-07	*0001*	10/8/2013	10/11/2013	11 mg/L
Site: EXTERIOR TRIM AROUND BASEMENT WINDOWS				

Kevin Pang
or other approved signatory

The test results contained within this report meet the requirements of NELAC unless otherwise noted. This report relates only to those items tested. Samples received in good condition unless otherwise noted. Quality Control Data associated with this sample set is within acceptable limits, unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit.

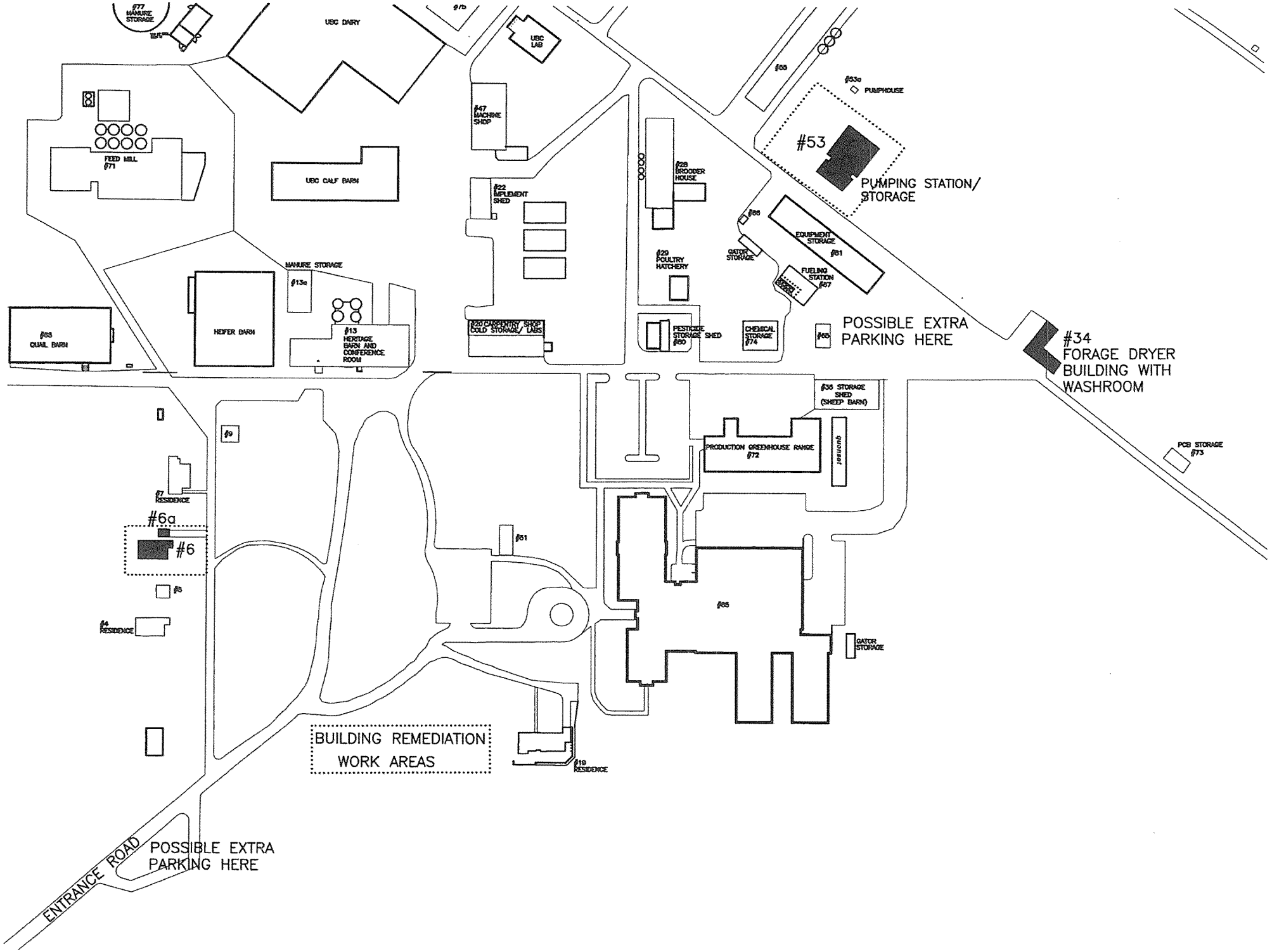
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367

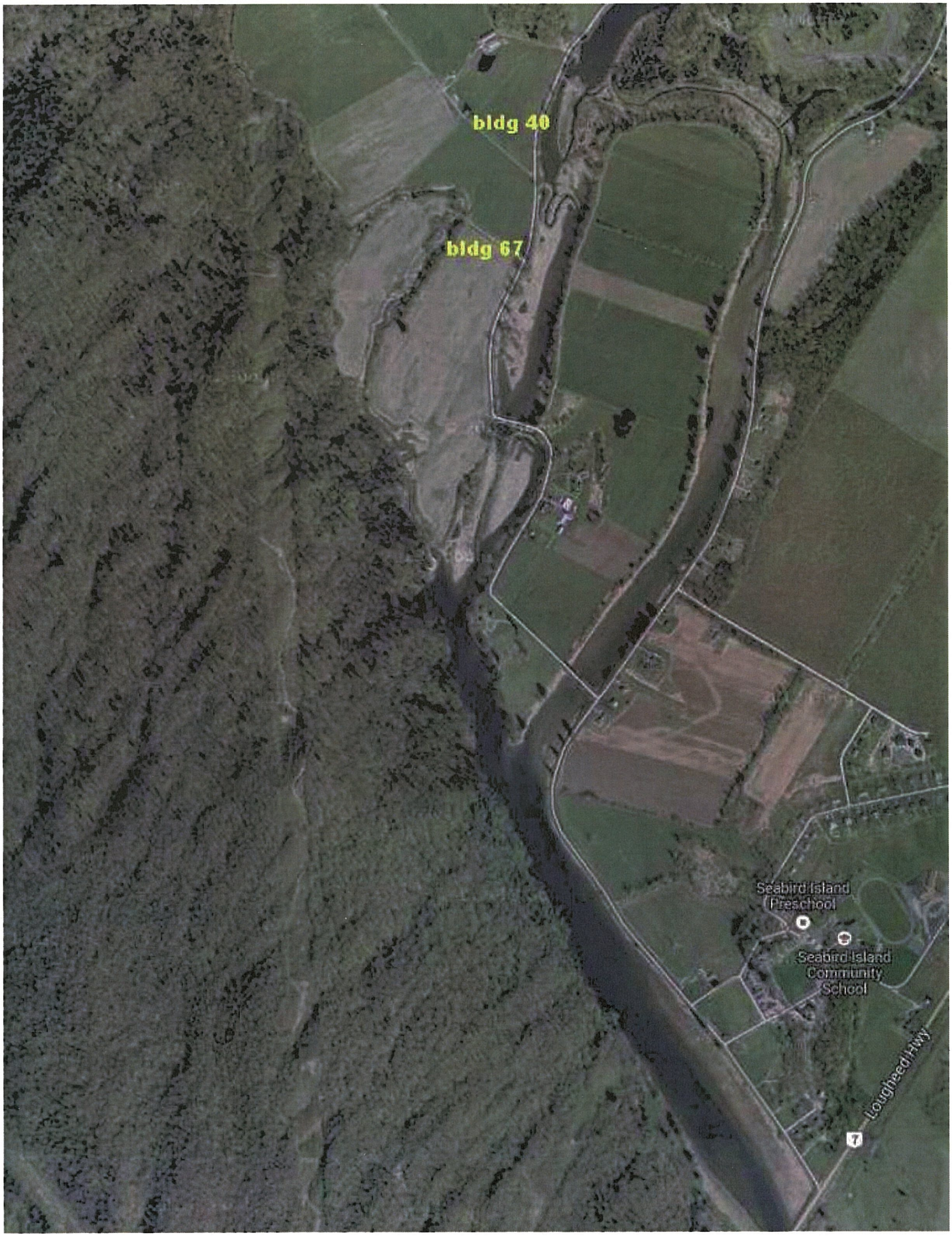
Initial report from 10/11/2013 16:26:47

Public Works and
Government Services Canada

Appendix B - Issued for Tender Drawings

Real Property Services Branch, Professional and Technical Services, Pacific Region
Room 219 - 800 Burrard Street, Vancouver, B.C. V6Z 0B9


#77 MANURE STORAGE
UBC DAIRY
UBC LAB
#53a PUMPHOUSE
#47 MACHINE SHOP
#53
PUMPING STATION/ STORAGE
FEED MILL #71
UBC CALF BARN
#22 IMPLEMENT SHED
#28 BROODER HOUSE
#66
EQUIPMENT STORAGE #61
GATOR STORAGE
#29 POULTRY HATCHERY
FUELING STATION #67
MANURE STORAGE #13a
#63 QUAIL BARN
HEIFER BARN
#13 HERITAGE BARN AND CONFERENCE ROOM
#20 CARPENTRY SHOP COLD STORAGE/ LABS
PESTICIDE STORAGE SHED #60
CHEMICAL STORAGE #74
#65
POSSIBLE EXTRA PARKING HERE
#34 FORAGE DRYER BUILDING WITH WASHROOM
#30 STORAGE SHED (SHEEP BARN)
#9
PRODUCTION GREENHOUSE RANGE #72
greenhouses
PCB STORAGE #73
#7 RESIDENCE
#6a
#6
#51
#5
#4 RESIDENCE
#35
GATOR STORAGE
BUILDING REMEDIATION WORK AREAS
#10 RESIDENCE
ENTRANCE ROAD
POSSIBLE EXTRA PARKING HERE


bldg 40
bldg 67
Seabird Island Preschool
Seabird Island Community School
Lougheed Hwy
7


bldg 40
bldg 67
Chaplin Rd
Chaplin Rd
Chaplin Rd