Public Works and Government Services Canada

Specification

CSC Mountain

FB Demolition

Requisition No. EZ899-141247/A

Project No. R.060161.001
August 2013

APPROVED BY:

Regional Manager, ~~AES~~ ES — Date 2013/09/09

Construction Safety Coordinator — Date 2013-09-02.

TENDER:

Project Manager — Date 2013-09-02

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

SPECIFICATIONS - DIVISIONS 1 TO 32

DIVISION 1 GENERAL REQUIREMENTS

DIVISION 2 SITEWORK

DIVISION 31 EARTHWORKS

DIVISION 32 EXTERIOR IMPROVEMENTS

APPENDICIES

"Pre-Demolition Hazardous Building Materials Assessment – CSC's Mountain Institution; Buildings FB1 – FB9 and Manure Pits; Sutherland and Humphries Road, Agassiz, BC; Addendum 1 – Supplemental Lead Leachate Testing", prepared by Stantec Consulting Ltd., dated August 8, 2013.

"Ground Penetrating Radar and EM Survey; Mountain Institution Property", prepared by able1call.ca Underground Utility Locators, dated October 2, 2012

"Environmental Effects Evaluation (EEE) Report; Correctional Service Canada, 3024 Sutherland Road and 4469 Humphrey Road Building Demolition; Agassiz, BC" prepared by Hemmera, dated May, 2013

Appendix B

Issued for Tender Drawings

Drawing 1 – Site Plan

Drawing L1 – Landscape Key Plan

Drawing L2 – Landscape Restoration Plan (Humphrey Road Site)

Drawing L3 – Landscape Restoration Plan (Sutherland Road Site)

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 Abatement and Demolition of 9 buildings (FB1 through FB9) and 1 associated manure pit, located at Mountain Institution in Agassiz BC (Sutherland Road and Humphrey Road), including removal of foundations (with the exception of the concrete foundation for FB8 (Loafing Barn/Milk Parlour), which will remain in place) and removal of underground utilities, returning site back to natural habitat; and further identified as the Work.

1.3 OCCUPANCY

.1 The site and buildings will remain unoccupied during the Work.

.2 Co-operate with Departmental Representative in scheduling operations to minimize conflict and to facilitate CSC usage of premises, where applicable.

1.4 CONTRACTOR'S USE OF PREMISES

.1 Contractor will have access to site as necessary to complete the Work, between September, 2013 and March 31st, 2014.

.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 Institutions is controlled by the Departmental Representative.

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

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

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

.6 Hours of work:

.1 Perform work during in accordance with applicable Municipal bylaws. Work may be performed on weekends and holidays, with a minimum forty-eight (48) hours advance notice and approval of the Departmental Representative. Arrange with Departmental Representative at each work site when after-hours work, is required due to schedule slippage. Provide schedule for prior approval of Departmental Representative.

.7 Access into Institution:

.1 Not required.

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 weekly 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 weekly 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 CSC 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 and demolition.

.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 Existing 110 volt/15 amp electrical power and lighting may be used for abatement and demolition purposes at no extra cost as directed by the Departmental Representative, provided that electrical components used for temporary power are replaced when damaged. 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 space is on the sides of roadways, in accordance with applicable municipal regulations and bylaws.

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 Contractor to provide 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. Refer to Section 01 74 21 – Demolition Waste Management And Disposal.

.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 Abatement and Demolition of 9 buildings (FB1 through FB9) and 1 associated manure pit, located at Mountain Institution in Agassiz BC (Sutherland Road and Humphrey Road), including removal of foundations (with the exception of the concrete foundation for FB8 (Loafing Barn/Milk Parlour), which will remain in place) and removal of underground utilities, returning site back to natural habitat; 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 As part of demolition, all services are to be capped off at property line (where possible) in manner approved by authorities having jurisdiction.

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

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

.10 Although potable water may be provided by the site the Contractor must plan to supply potable water to be self-sufficient, if necessary.

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

.12 Portable washroom facilities must be supplied by the Contractor.

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 Portable washroom facilities must be supplied by the Contractor

.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 Personnel employed on this project will be subject to a security check as outlined in Section 01 14 10 – Security Requirements. Obtain clearance, as instructed, for each individual who will require to enter premises.

.2 Obtain requisite clearance, as instructed, for each individual required to enter premises.

.3 Personnel will be checked daily at start of work shift and provided with pass which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.

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 both the abatement and demolition project and the institutional operations may proceed without undue disruption or hindrance and that the security of the Institution is maintained at all times.

Part 2 Definitions

.1 "Contraband" means:

.1 an intoxicant, including alcoholic beverages, drugs and narcotics

.2 a weapon or a component thereof, ammunition for a weapon, and anything that is designed to kill, injure or disable a person or that is altered so as to be capable of killing, injuring or disabling a person, when possessed without prior authorization,

.3 an explosive or a bomb or a component thereof,

.4 currency over any applicable prescribed limit, $25.00, and

.5 any item not described in paragraphs (a) to (d) that could jeopardize the security of a Penitentiary or the safety of persons, when that item is possessed without prior authorization.

.2 “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.

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

.4 "CSC" means Correctional Service Canada.

.5 "Departmental Representative" means Departmental Representative, Warden or Superintendent of the Institution as applicable.

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

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

.8 "Perimeter" means the fenced or walled area of the institution that restrains the movement of the inmates.

.9 "Abatement/demolition limits" means the area, as indicated in the contract documents, that the contractor will be allowed to work". This area may or may not be isolated from the security area of the institution. Limits to be confirmed at abatement/demolition start-up meeting.

Part 3 Preliminary Proceedings

.1 At abatement/demolition 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 institution's particular requirements.

.4 The contractors' responsibilities:

.5 Ensure that all abatement/demolition 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 institutional personnel in ensuring that security requirements are observed by all abatement/demolition employees.

Part 4 Contractor Employees

.1 Submit to the Departmental Representative a list of the names with date of birth of all employees to be employed on the abatement/demolition site and a security clearance form for each employee.

.2 Allow 10 working days for processing of security clearances. Employees will not be admitted to the Institution without a valid security clearance in place and a recent picture identification such as a provincial driver's license. Security clearances obtained from other CSC institutions are not valid at this institution except as approved otherwise.

.3 The Departmental Representative may require that facial photographs may be taken of abatement/demolition employees and these photographs may be displayed at appropriate locations in the institution or in an electronic database for identification purposes. The Departmental Representative may require that these Photo ID cards be provided for all abatement/demolition workers. ID cards will then be left at the designated entrance to be picked up upon arrival at the Institution and be displayed prominently on the abatement/demolition employees clothing at all times while employees are in the institution.

.4 Entry to Institutional Property will be refused to any person there may be reason to believe may be a security risk.

.5 Any person employed on the abatement/demolition site will be subject to immediate removal from Institutional Property if they:

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

.2 behave in an unusual or disorderly manner.

.3 are in possession of contraband.

Part 5 Vehicles

.1 All unattended vehicles on CSC property must have windows closed; fuel caps locked, doors and trunks locked and keys removed. The keys must be securely in the possession of the owner or an employee of the company that owns the vehicle.

.2 The Departmental Representative may limit at any time the number and type of vehicles allowed within the Institution.

Part 6 Parking

.1 The parking area(s) to be used by abatement/demolition employees will be designated by the Departmental Representative. Parking in other locations will be prohibited and vehicles may be subject to removal.

Part 7 Work Hours

.1 In accordance with applicable municipal bylaws and regulations.

Part 8 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 9 Contraband

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

.2 The discovery of contraband on the abatement/demolition site and the identification of the person(s) responsible for the contraband shall be reported immediately to the Departmental Representative.

.3 Contractors should be vigilant with both their staff and the staff of their sub-contractors and suppliers that the discovery of contraband may result in cancellation of the security clearance of the affected employee. Serious infractions may result in the removal of the company from the project.

.4 Presence of arms and ammunition in vehicles of contractors, sub-contractors and suppliers or employees of these will result in the immediate cancellation of security clearances for the driver of the vehicle.

Part 10 Stoppage of Work

.1 The Departmental Representative may request at any time that the contractor, his employees, sub-contractors and their employees not enter or leave the work site

immediately due to a security situation occurring within the Institution. The contractor's site supervisor shall note the name of the staff member making the request and the time of the request and obey the order as quickly as possible.

.2 The contractor shall advise the Departmental Representative within 24 hours of this delay to the progress of the work.

Part 11 Contact with Inmates

.1 Unless specifically authorized, it is forbidden to come into contact with inmates, to talk with them, to receive objects from them or to give them objects. Any employee doing any of the above will be removed from the site and his security clearance revoked.

.2 It is forbidden to take pictures of inmates, of CSC staff members or of any part of the Institution other than those required as part of this contract.

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 "Pre-Demolition Hazardous Building Materials Assessment – CSC's Mountain Institution; Buildings FB1 – FB9 and Manure Pits; Sutherland and Humphries Road, Agassiz, BC", prepared by Stantec Consulting Ltd., dated February, 2013.

.2 "Pre-Demolition Hazardous Building Materials Assessment – CSC's Mountain Institution; Buildings FB1 – FB9 and Manure Pits; Sutherland and Humphries Road, Agassiz, BC – Addendum 1 – Supplemental Lead Leachate Testing", prepared by Stantec Consulting Ltd., dated August 8, 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 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

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

.3 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

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

.5 Submit 6 prints and an electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.6 Submit 6 copies and an electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.7 Shop drawings, if required, are to be stamped by a Professional Engineer (P.Eng.) registered in the province of the Work.

.8 Delete information not applicable to project.

.9 Supplement standard information to provide details applicable to project.

.10 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.5 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic copies of colour digital photography in ".jpg" format, standard resolution as directed by Departmental Representative.

.2 Project identification: name and number of project and date of exposure indicated.

.3 Viewpoints and their location as determined by Departmental Representative.

.4 Frequency of photographic documentation: as directed by Departmental Representative.

.1 Upon completion of Work, and as directed by Departmental Representative.

1.6 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

1.7 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 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 in areas/properties adjacent to a CSC institution.

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 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 demolition 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 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

.6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site, if necessary.

.7 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.

.8 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.

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

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

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

.12 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.

.13 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.

.14 Historical, archaeological, cultural resources, biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.

.15 Pesticide treatment plan to be included and updated, as required.

1.4 FIRES

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

1.5 DRAINAGE

.1 Provide Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls provided. Ensure plan includes monitoring and reporting requirements

to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction, and must include silt fencing.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

.4 Coordinate Erosion and Sediment Control Plan with Section 1.10 Species at Risk Requirements.

.2 Provide temporary drainage and pumping required to keep excavations and site free from water.

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

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

1.6 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties as indicated.

.2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m minimum.

.3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.4 Minimize stripping of topsoil and vegetation.

.5 Restrict tree removal to areas indicated or designated by Departmental Representative.

1.7 WORK ADJACENT TO WATERWAYS

.1 Delineate a 2.5 m buffer around the work site with silt fencing or a similar barrier, in order to protect riparian vegetation, reduce transport of sediment, and reduce impacts outside of the project footprint.

.1 The 2.5 metre buffer should be delineated (as identified in the EPP) on the Erosion and Sediment Control plan to be prepared by the contractor, and submitted for approval.

.2 Construction equipment to be operated on land only.

.3 Do not use waterway beds for borrow material.

.4 Waterways to be free of excavated fill, waste material and debris.

.5 Do not construct temporary crossings. Avoid instream works.

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

1.8 POLLUTION CONTROL

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

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

.3 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.

1.9 HISTORICAL/ARCHAEOLOGICAL CONTROL

.1 Provide historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in area are discovered during Work.

.2 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Contractor personnel and Departmental Representative.

1.10 SPECIES AT RISK REQUIREMENTS

.1 Provide Species at Risk plan that defines procedures to be followed that fulfill the mitigation measures described in the Environmental Effects Evaluation prepared for this project and attached to these Specifications in Appendix A.

.2 Plan: include methods to assure protection of species at risk and identify lines of communication between Contractor personnel and Departmental Representative.

.1 Conduct all project works within the appropriate least risk timing windows. Clear any vegetation between August 1 and March 31, to avoid the breeding bird time period. Demolish Buildings 1 through 9 between June and the end of February, to avoid the Barn Owl breeding time period. Demolish manure pit #1 and any other structures that may impact on Oregon Spotted Frog (OSF) habitat between mid-May and November, to avoid the OSF breeding time period.

.2 Ensure project employees and contractors are aware of species at risk potentially present on the site and required mitigation actions with regards to those species.

.3 Ensure project employees and contractors are aware of the roles, responsibilities and authority of the designated Environmental Monitors on site.

.4 Do not approach, feed or harass wildlife during project activities.

1.11 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: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.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

.4 Section 02 85 00.02 Mould Remediation - Intermediate 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.

.5 Mould: Removal of Mould-impacted materials is one of the prime purposes of this Contract.

.1 Protective measures for asbestos (Refer to Sections 02 82 00.01 - Asbestos Abatement - Minimum Precautions; 02 82 00.02 - Asbestos Abatement - Intermediate Precautions; and 02 82 00.03 - Asbestos Abatement - Maximum Precautions) shall be sufficient for protecting workers and work areas from exposure to mould, where mould-impacted materials are also asbestos-containing.

.2 Refer to Section 02 85 00.02 Mould Remediation - Intermediate Precautions for protective measures to be used when mould-impacted materials that are not asbestos-containing require removal by hand.

.3 Should additional impacted materials be discovered during work, notify Consultant for direction.

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 use.

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

.3 Contractor will pay for utility charges at prevailing rates.

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 Contractor to arrange and pay for temporary power during abatement and demolition for temporary lighting and operating of power tools, as required by the Work.

.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.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction, and must include silt fencing.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 74 21 Demolition Waste Management and Disposal

.2 Section 02 82 00.01 Asbestos Abatement - Minimum Precautions

.3 Section 02 82 00.02 Asbestos Abatement - Intermediate Precautions

.4 Section 02 82 00.03 Asbestos Abatement - Maximum Precautions

.5 Section 02 85 00.02 Mould Remediation - Intermediate 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 HOARDING

.1 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

.2 Provide tree protection fencing around trees and plants designated to remain as per Section 32 01 91 Tree and Plant Protection, and as noted on drawings.

.3 Provide barrier around job site to prevent encroachment into riparian zone as per Section 01 35 43 Environmental Procedures.

1.4 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.

1.5 WEATHER ENCLOSURES

.1 Not applicable

1.6 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.

1.7 ACCESS TO SITE

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

1.8 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.9 FIRE ROUTES

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

1.10 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.

1.11 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Demolition Waste Management and Disposal.

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 74 21 - Demolition Waste Management and Disposal.

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. Refer to Section 01 74 21 - Demolition Waste Management and Disposal.

.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 for reuse and recycling in accordance with Section 01 74 21 - Demolition Waste Management and Disposal

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 WASTE MANAGEMENT GOALS

.1 Prior to start of Work conduct meeting with Departmental Representative and Consultant to review and discuss Waste Management Plan and Goals.

.2 Waste Management Goal: Wood, concrete and metal Project Waste to be diverted from landfill sites unless not safe to do so (e.g. contaminated with mould, rodent/avian waste or other hazardous building materials). Provide Departmental Representative documentation certifying that waste management, recycling and/or reuse of recyclable and reusable materials have been extensively practiced.

.3 Accomplish maximum control of solid demolition waste.

.4 Preserve environment and prevent pollution and environment damage.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

1.3 REFERENCES

.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 CSA International

.1 CSA S350-[M1980(R2003)], Code of Practice for Safety in Demolition of Structures.

.3 Department of Justice Canada (Jus)

.1 Canadian Environmental Assessment Act (CEAA), 2012, c. 37.

.2 Canadian Environmental Protection Act (CEPA), 1999, c. 33.

.1 SOR/2003-2, On-Road Vehicle and Engine Emission Regulations.

.2 SOR/2006-268, Regulations Amending the On-Road Vehicle and Engine Emission Regulations.

.3 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

1.4 DEFINITIONS

.1 Class III: non-hazardous waste - construction renovation and demolition waste.

.2 Demolition Waste Audit (DWA): relates to actual waste generated from project.

.3 Inert Fill: inert waste - exclusively asphalt and concrete.

.4 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.

.5 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

.6 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

.7 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:

.1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.

.2 Returning reusable items including pallets or unused products to vendors.

.8 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.

.9 Separate Condition: refers to waste sorted into individual types.

.10 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.

.11 Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

.12 Waste Reduction Work plan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from DWA (Schedule A).

1.5 DOCUMENTS

.1 Maintain at job site, one copy of each of the following documents:

.1 Demolition Waste Audit.

.2 Waste Reduction Work plan.

.3 Material Source Separation Plan.

.4 Schedules A and B completed for project.

1.6 SUBMITTALS

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

.2 Prepare and submit following prior to project start-up:

.1 Submit 2 copies of completed Demolition Waste Audit (DWA): Schedule A.

.2 Submit 2 copies of completed Waste Reduction Work plan (WRW): Schedule B.

.3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.

.1 Failure to submit could result in hold back of final payment.

.2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled or disposed of.

.3 For each material reused, sold or recycled from project, include amount in tonnes and the destination.

.4 For each material land filled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

1.7 DEMOLITION WASTE AUDIT (DWA)

.1 Prepare DWA prior to project start-up.

.2 Complete DWA: Schedule A.

.3 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.

1.8 WASTE REDUCTION WORK PLAN (WRW)

.1 Prepare WRW prior to project start-up.

.2 WRW should include but not limited to:

.1 Destination of materials listed.

.2 Deconstruction/disassembly techniques and sequencing.

.3 Schedule for deconstruction/disassembly.

.4 Location.

.5 Security.

.6 Protection.

.7 Clear labelling of storage areas.

.8 Details on materials handling and removal procedures.

.9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.

.3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.

.4 Describe management of waste.

.5 Identify opportunities for reduction, reuse, and recycling of materials based on information acquired from WA.

.6 Post WRW or summary where workers at site are able to review content.

.7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.

.8 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

1.9 STORAGE, HANDLING AND PROTECTION

.1 Store materials to be reused, recycled and salvaged in locations as directed by Departmental Representative or Consultant.

.2 Unless specified otherwise, materials for removal become Contractor's property.

.3 Protect, stockpile, store and catalogue salvaged items.

.4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.5 Protect structural components not removed for demolition from movement or damage.

.6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative and Consultant.

.7 Protect surface drainage, mechanical and electrical from damage and blockage.

.8 Separate and store materials produced during dismantling of structures in designated areas.

.9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.

.1 On-site source separation is recommended.
.2 Remove co-mingled materials to off-site processing facility for separation.
.3 Provide waybills for separated materials.

1.10 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

.2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner or any other liquid hazardous wastes into waterways, storm, or sanitary sewers.

.3 Keep records of construction waste including:

.1 Number and size of bins.
.2 Waste type of each bin.
.3 Total tonnage generated.
.4 Tonnage reused or recycled.
.5 Reused or recycled waste destination.

.4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

.5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.11 USE OF SITE AND FACILITIES

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

.2 Provide temporary security measures approved by Departmental Representative.

1.12 SCHEDULING

.1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 SELECTIVE DEMOLITION

.1 Investigating options for reuse of Building Elements is to be made a priority of this project. At a minimum, this is anticipated to include:

.1 Subsequent to the removal of building materials impacted by mould and/or other hazardous materials (e.g. asbestos) retaining the services of a salvage company to review the buildings and structures to assess whether building components (e.g. windows, doors, etc.) have salvage value, and to complete the salvage of those materials deemed appropriate.

.1 Documentation of materials that can/cannot be salvaged is to be provided to Departmental Representative.

.2 Investigating options for having manure materials within manure pit #1 removed and used by farmers within the local (or other) communities.

.1 Documentation of materials that can/cannot be reused is to be provided to Departmental Representative.

3.2 APPLICATION

.1 Do Work in compliance with WRW.

.2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.3 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

3.4 DIVERSION OF MATERIALS

.1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative, and consistent with applicable fire regulations.

.1 Mark containers or stockpile areas.

.2 Provide instruction on disposal practices.

.2 On-site sale of salvaged, recovered, reusable and/o r recyclable materials is permitted.

.3 Demolition Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Doors and Frames	[100]	[___]
Electrical Equipment	[80]	[___]
Mechanical Equipment	[100]	[___]
Metals	[100]	[___]
Concrete	[100]	[___]
Wood (uncontaminated)	[100]	[___]
Other		[___]

3.5 DEMOLITION WASTE AUDIT (DWA)

.1 Schedule A - Demolition Waste Audit (DWA):

(1) Material Description	(2) Quantity	(3) Unit	(4) Total	(5) Volume (cum)	(6) Weight (cum)	(7) Remarks and Assumptions
Wood						
Wood Stud						
Plywood						
Baseboard-Wood						
Door Trim - Wood						
Cabinet						
Doors and Windows						
Panel Regular						
Slab Regular						
Wood Laminate						
Byfold - Closet						
Glazing						

3.6 WASTE REDUCTION WORKPLAN (WRW)

.1 Schedule B:

(1) Material Category	(2) Person(s) Respon-sible	(3) Total Quantity of Waste (unit)	(4) Reused Amount (units) Projected	Actual	(5) Recycled Amount (unit) Projected	Actual	(6) Material(s) Destina-tion

(1) Material Category	(2) Person(s) Respon-sible	(3) Total Quantity of Waste (unit)	(4) Reused Amount (units) Projected	Actual	(5) Recycled Amount (unit) Projected	Actual	(6) Material(s) Destina-tion
Doors							
Windows							
Hardware							
Painted Frames							
Glass							
Wood							
Metal							
Other							

3.7 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Schedule C - Government Chief Responsibility for the Environment:

Province	Address	General Inquires	Fax
British Columbia	Ministry of Environment Lands and Parks 810 Blanshard Street, 4th Floor Victoria BC V8V 1X4	604-387-1161	604-356-6464
	Waste Reduction Commission Soils and Hazardous Waste 770 South Pacific Blvd, Suite 303 Vancouver BC V6B 5E7	604-660-9550	604-660-9596

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 74 11 – Cleaning.

.2 Section 01 74 21 - Demolition Waste Management and Disposal.

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: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Demolition Waste Management and Disposal

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 31 19 - Project Meetings.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 35 43 - Environmental Procedures.

.4 Section 01 56 00 - Temporary Barriers and Enclosures

.5 Section 01 74 21 - Demolition Waste Management Disposal.

.6 Section 02 81 01 - Hazardous Materials.

1.2 REFERENCES

.1 Definitions:

.1 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, include but not limited to: poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or materials that endanger human health or environment if handled improperly.

.2 Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as co-ordinating related, required submittal and reporting requirements.

.3 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill.

.4 Waste Reduction Work plan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from WA.

.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 CSA International

.1 CSA S350-[M1980(R2003)], Code of Practice for Safety in Demolition of Structures.

.3 Department of Justice Canada (Jus)

.1 Canadian Environmental Assessment Act (CEAA), 1995, c. 37.

.2 Canadian Environmental Protection Act (CEPA), 1999, c. 33.

.1 SOR/2003-2, On-Road Vehicle and Engine Emission Regulations.

.2 SOR/2006-268, Regulations Amending the On-Road Vehicle and Engine Emission Regulations.

.3 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

.4 U.S. Environmental Protection Agency (EPA)

.1 EPA CFR 86.098-10, Emission standards for 1998 and later model year Otto-cycle heavy-duty engines and vehicles.

.2 EPA CFR 86.098-11, Emission standards for 1998 and later model year diesel heavy-duty engines and vehicles.

.3 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

.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

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Pre-Installation Meetings:

.1 Convene pre-installation meeting 1 week prior to beginning work of this Section, with Contractor's Representative, Departmental Representative and Consultant in accordance with Section 01 31 19 - Project Meetings to:

.1 Verify project requirements.

.2 Verify existing site conditions adjacent to demolition work.

.3 Co-ordination with other construction subtrades.

.2 Hold project meetings on an "as required" basis, or as requested by Consultant or Departmental Representative

.3 Ensure key personnel attend, as required.

.4 WMC must document and provide verbal report on status of waste diversion activity at each meeting.

.2 Scheduling:

.1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.

.1 In event of unforeseen delay notify Departmental Representative and Consultant in writing (e-mail is acceptable).

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures and Section 01 74 21 - Demolition Waste Management Disposal.

.2 WMC is responsible for fulfilment of reporting requirements.

.3 Prior to beginning of Work on site submit detailed Waste Reduction Work plan in accordance with Section 01 74 21 - Demolition Waste Management and Disposal and indicate:

.1 Descriptions of and anticipated quantities of materials to be salvaged reused, recycled and landfilled.

.2 Schedule of selective demolition, if applicable.

.3 Number and location of dumpsters.

.4 Anticipated frequency of tippage.

.5 Name and address of haulers, waste disposal facilities and/or waste receiving organizations (e.g. recycling or re-use facilities).

.4 Submit copies of weigh bills, bills of lading and/or receipts from authorized disposal sites and reuse and recycling facilities for material removed from site upon completion of the project.

.1 Written authorization from Departmental Representative or Consultant is required to deviate from haulers, waste disposal facilities and/or waste receiving organizations listed in Waste Reduction Work plan.

.5 Shop Drawings:

.1 Submit for review and approval demolition drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning.

.6 Sustainable Design Submittals:

.1 Erosion and Sedimentation Control: submit erosion and sedimentation control plan in accordance with authorities having jurisdiction.

.2 Construction Waste Management:

.1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

.7 Testing for Growing Medium as part of Site Improvements works to be completed and submitted as per Section 32 91 21 Growing Medium Preparation and Placement

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements: Ensure Work is performed in compliance with applicable Federal, Provincial/Territorial and Municipal regulations.

1.6 SITE CONDITIONS

.1 Environmental protection:

.1 Ensure Work is done in accordance with Section 01 35 43 - Environmental Procedures.

.2 Ensure Work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.3 Fires and burning of waste or materials is not permitted on site.

.4 Do not bury rubbish waste materials.

.5 Do not dispose of waste or volatile materials including but not limited to: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.

.1 Ensure proper disposal procedures are maintained throughout project.

.6 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.

.7 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction.

.8 Protect trees, plants and foliage on site and adjacent properties where indicated.

.9 Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures during demolition work.

.10 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on all temporary roads.

1.7 EXISTING CONDITIONS

.1 If material resembling spray or trowel applied asbestos or other substance listed as hazardous be encountered in course of demolition, stop work, take preventative measures, and notify Departmental Representative and Consultant immediately. Proceed only after receipt of written instructions have been received from Departmental Representative or Consultant.

.2 Structures to be demolished are based on their condition at time of examination prior to tendering.

Part 2 Products

2.1 EQUIPMENT

.1 Equipment and heavy machinery:

.1 On-road vehicles to: CEPA-SOR/2003-2, On-Road Vehicle and Engine Emission Regulations and CEPA-SOR/2006-268, Regulations Amending the On-Road Vehicle and Engine Emission Regulations.

.2 Off-road vehicles to: EPA CFR 86.098-10 and EPA CFR 86.098-11.

.2 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

Part 3 Execution

3.1 PREPARATION

.1 Temporary Erosion and Sedimentation Control:

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during demolition.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal after completion of demolition work.

.2 Protection of in-place conditions:

.1 Work in accordance with Section 01 35 43 - Environmental Procedures.

.2 Prevent movement, settlement or damage of adjacent trees, landscaping, adjacent grades, properties and roadways

.1 Provide bracing, shoring and underpinning, as required.

.2 Repair damage caused by demolition as directed by Departmental Representative.

.3 Support affected structures and, if safety of structure being demolished appears to be endangered, take preventative measures, stop Work and immediately notify Departmental Representative and Consultant.

.4 Prevent debris from blocking surface drainage system, elevators, mechanical and electrical systems which must remain in operation.

.3 Surface Preparation:

.1 Disconnect and remove electrical and telephone service lines entering buildings to be demolished.

.1 Post warning signs on electrical lines and equipment which must remain energized to serve other properties during period of demolition.

.2 Electrical and communication lines to be disconnected at the source. Wiring to be removed and not left coiled in service box or on pole.

.2 Disconnect, remove and cap all mechanical services.

.1 Natural gas supply lines: remove to property line in accordance with gas company requirements.

.2 Sewer and water lines: remove to property line in accordance with authority having jurisdiction.

.3 Other underground services: remove and dispose of as indicated.

.3 Septic Tanks:

.1 Pump out buried septic tanks, left in place.

.2 Remove all tanks.

.3 Removal in accordance with CCME, Code of Practice PN 1326.

.4 Underground storage tanks and piping: remove and dispose in accordance with CCME PN 1326.

.5 Do not disrupt active or energized utilities designated to remain undisturbed.

3.2 DEMOLITION

.1 Do demolition work in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.2 Blasting operations not permitted during demolition.

.3 Remove contaminated or dangerous materials as defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.

.4 Prior to start of Work remove contaminated or hazardous materials as directed by Consultant from site and dispose of at designated disposal facilities in a safe manner and in accordance with TDGA and other applicable requirements and Section 02 81 01 - Hazardous Materials.

.5 Have salvage company review the buildings and structures to assess whether building components (e.g. windows, doors, etc.) have salvage value, and to complete the salvage of those materials deemed appropriate.

.1 If materials (e.g. doors, windows, etc.) are not to be salvaged, documentation is to be provided to Departmental Representative indicating the reasons for classifying materials as general waste.

.6 Investigate options for having manure materials within manure pit #1 removed and used by farmers within the local (or other) communities, and proceed with appropriate course of action based on findings.

.1 If materials within the manure pit cannot be re-used, documentation is to be provided to Departmental Representative indicating the reasons for classifying materials as general waste/sewage waste.

.7 Demolish structures.

.8 Crush concrete generated due to demolition of foundations to size suitable for recycling.

.1 Where possible, identify markets which will accept crushed material as aggregate.

.2 For further information regarding acceptable uses contact Provincial / Territorial aggregate producers associations.

.9 Demolish and remove foundations and footings in their entirety, **other than the FB8, Loafing Barn/ Milking Parlour, foundation which is to be left in place**.

.10 At end of each day's work, leave Work in safe and stable condition.

.1 Protect interiors of parts not yet demolished from entry at all times.

.11 Demolish to minimize dusting. Keep materials wetted as necessary.

.12 Remove structural framing.

.13 Contain fibrous materials to minimize release of airborne fibres while being transported.

.14 Only dispose of material specified by selected alternative disposal option.

.1 Additional disposal options to be provided by on-site waste diversion representative prior to disposal.

.15 Remove and dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction.

.16 Use natural lighting to do Work where possible.

.1 Shut off lighting except those required for security purposes at end of each day.

3.3 CLEANING

.1 Develop Waste Reduction Work plan related to Work of this Section.

.2 Waste Management: separate and document waste materials for reuse and recycling in accordance with Section 01 74 21 - Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

.3 Divert excess materials from landfill to approved site.

.4 Designate appropriate security resources / measures to prevent vandalism, damage and theft.

.5 Locate stockpiled materials convenient for loading into containers for off-site recycling or disposal. Eliminate double handling wherever possible.

.6 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

.7 Separate from general waste stream each of following materials, where safe to do so and/or where not removed for disposal as part of hazardous materials abatement. Stockpile materials in neat and orderly fashion in location and as directed by Departmental Representative and/or Consultant for alternate disposal. Stockpile materials in accordance with applicable fire and safety regulations.

.1 Glass fibre ceiling tiles.

.2 Wood fibre ceiling tiles.

.3 Power source poles deemed unfit for reuse by Departmental Representative.

.4 Wiring and conduit.

.5 Outlets/switches.

.6 Floor receptacles.

.7 Metal duct work, baffles, HVAC equipment.

.8 Demountable partitions.

.9 Drapes.

.10 Tracks and blinds.

.11 Insulation batts.

.12 Miscellaneous metals.

.13 Carpet.

.8 Supply separate, clearly marked disposal bins for categories of waste material. Please notify Departmental Representative and/or Consultant prior to removal of bins from site.

.9 Remove stockpiles of like materials by alternate disposal option once collection of materials is complete, or materials stockpiled will fill one transport container.

.10 Transport material designated for alternate disposal using approved haulers, waste disposal facilities and/or waste receiving organizations listed in Waste Reduction Work plan and in accordance with applicable regulations.

.1 Written authorization from Departmental Representative is required to deviate from haulers, waste disposal facilities and/or waste receiving organizations listed in Waste Reduction Work plan.

.11 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

.1 Disposal facilities must be those approved of and listed in Waste Reduction Work plan.

.2 Written authorization from Departmental Representative is required to deviate from disposal facilities listed in Waste Reduction Work plan.

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 01 74 21 - Demolition Waste Management and Disposal

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

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

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

.9 Section 02 85 00.02 - Mould Remediation - Intermediate Precautions

1.2 REFERENCES

.1 Reports

.1 "Pre-Demolition Hazardous Building Materials Assessment – CSC's Mountain Institution; Buildings FB1 – FB9 and Manure Pits; Sutherland and Humphries Road, Agassiz, BC", prepared by Stantec Consulting Ltd., dated February, 2013 (further referred to as the Assessment Report).

.2 "Pre-Demolition Hazardous Building Materials Assessment – CSC's Mountain Institution; Buildings FB1 – FB9 and Manure Pits; Sutherland and Humphries Road, Agassiz, BC – Addendum 1 – Supplemental Lead Leachate Testing", prepared by Stantec Consulting Ltd., dated August 8, 2013 (further referred to as the Addendum Report).

.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 Construction Waste Management:

.1 Submit project Demolition Waste Management Plan highlighting recycling and salvage requirements.

.2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating percentage of construction wastes were recycled or salvaged

.5 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.

.5 Develop Demolition Waste Management Plan related to Work of this Section.

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 and Mould – 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 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 the current version of the British Columbia Hazardous Waste Regulation (BC Reg. 63/88).

Lead-containing materials to be considered during demolition include the following:

1. Exterior walls of the FB1 with white paint
2. Interior walls of FB1 with white/green (layered) paint
3. Interior doors of FB8 with green paint
4. Lead is also expected to be present in the solder used on copper domestic pipes, is likely present in the caulking on bell fittings for cast iron drainage pipes, rooftop vents and is expected to be present in electrical equipment (i.e., batteries for emergency lighting/signage).

Samples of the materials coated with the above-noted paints were analysed for leachable lead content, and analytical results indicated that waste materials generated during demolition do NOT contain lead in dispersible form such that the leachate contains greater than 5.0 mg/L lead.

Polychlorinated Biphenyls (PCBs)

For the approximately eight (8) 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).

Remove and dispose of the following potential ODS-containing equipment:

1. Refrigeration unit in kitchen of FB1
2. Air handling unit in room 101 of FB 8.

Silica

Silica may be present in concrete, cement, mortar, ceramic wall and floor tiles, stucco finishes and acoustic tiles, which are present in various locations throughout.

When silica-containing materials are to be removed during demolition activities, ensure dust control measures are employed such that airborne silica dust concentrations do not exceed the exposure limit as stipulated by BC Reg. 296/97 (0.025 mg/m^3). This would include, but not be limited to, the following:

1. Providing workers with respiratory protection
2. Wetting the surface of the materials to prevent dust emissions
3. Providing workers with facilities to properly wash prior to exiting the work area
4. Providing dust control to mitigate the potential for demolition dust to escape from the work area into public and/or adjacent areas

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: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Demolition Waste Management and Disposal.

.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 01 74 21 - Demolition Waste Management and Disposal

.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 33 - Health and Safety Requirements

.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 for reuse and recycling in accordance with Section 01 74 21 - Demolition Waste Management and Disposal

.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 in accordance with Waste Management Plan.

.4 Separate and place in designated containers steel metal plastic waste in accordance with Waste Management Plan.

.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 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 33 - Health and Safety Requirements.

.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 drywall joint compound in Room 106 in FB1

.2 Removal of asbestos-containing drywall joint compound on walls and ceiling within Room 102 in FB2.

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 01 74 21 - Demolition Waste Management and Disposal

.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 33 - Health and Safety Requirements.

.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 for reuse and recycling in accordance with Section 01 74 21 - Demolition Waste Management and Disposal.

.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 in accordance with Waste Management Plan.

.4 Separate for reuse and recycling and place in designated containers steel, metal, and/or plastic waste in accordance with Waste Management Plan.

.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 – stones pattern, kitchen (Room 107) in FB1.

.2 Removal of asbestos-containing vinyl sheet flooring – red, in kitchen cabinets (Room 107) in FB1.

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 01 74 21 - Demolition Waste Management and Disposal

.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 33 - Health and Safety Requirements.

.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 for reuse and recycling in accordance with Section 01 74 21 - Demolition Waste Management and Disposal.

.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 in accordance with Waste Management Plan.

.4 Separate for reuse and recycling and place in designated containers steel, metal, and plastic waste in accordance with Waste Management Plan.

.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 33 - Health and Safety Requirements.

.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

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 SECTION INCLUDES

.1 Requirements and procedures for mould abatement of contaminated materials **that are required to be removed by hand, and that are not to be removed under asbestos abatement precautions of related sections above**. This would include, but would not be limited to:

.1 Removal of mould-contaminated drywall materials, in areas where present

.2 Removal of mould-contaminated plaster or other wall finish materials, in areas where present

.2 Dust control methods should be used for mould-contaminated materials that will be managed and/or handled using machinery

1.3 REFERENCES

.1 American Conference of Governmental Industrial Hygienists (ACGIH), Bioaerosols Assessment and Control [1999].

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

.1 Material Safety Data Sheets (MSDS).

.3 New York City Department of Health - Bureau of Environmental and Occupational Disease Epidemiology's Guidelines on the Assessment and Remediation of Fungi in Indoor Environment [2000]

.4 United States Department of Labor Occupational Safety and Health Administration (OSHA)

.1 29 CFR 1910.134 - Respiratory Protection.

.2 29 CFR 1910.1200 - Hazard Communication.

.5 United States Environmental Protection Agency (EPA), Mould Remediation in Schools and Commercial Buildings, [2001].

.6 Standard Construction Document CCA 82 “mould guidelines for the Canadian construction industry”, Canadian Construction Association, 2004 (referred to as “CCA 82”).

1.4 DEFINITIONS

.1 Authorized Visitors: Consultant[s] or designated representative[s], and representative[s] of regulatory agencies.

.2 Cleaning solution: detergent solution.

.3 Competent person: individuals who can demonstrate that mould remediation training has been obtained, is capable of identifying existing microbial hazards in workplace and selecting appropriate control strategy for microbial exposure.

.4 Contractor: remediation contractor providing demolition and removal services as defined in specification.

.5 Fibre Reinforced Polyethylene Sheet: rip-proof fibre reinforced polyethylene sheeting with added fibre reinforced adhesive tape along edges.

.6 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.

.7 HVAC: heating ventilating and air-conditioning system[s] which serve occupied areas. Includes but is not limited to air handling units, duct work, terminal boxes and vents.

.8 Mould contaminated work area: specific area or location where actual work is being performed or other areas of facility where it has been determined that it may be hazardous to public health as result of mould remediation.

.9 Occupied Area: areas of building or work site that is outside mould contaminated work area.

.10 PPE: Personnel Protection Equipment.

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

1.5 REGULATORY REQUIREMENTS

.1 Comply with regulations in effect at time work is performed. In case of conflict among these requirements or with these specifications the more stringent requirement applies. If no regulations exist, follow guidelines most widely accepted by recognized professional organizations such as occupational hygienists, health professionals or environmental engineers as listed in paragraph 1.2 References.

1.6 SUBMITTALS

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

.2 Submit proof of Contractors Liability Insurance for dealing with hazardous materials.

.3 Submit Workers Compensation Board status and transcription of insurance.

.4 Submit proof of attendance in form of certificate that supervisory personnel have trained in asbestos and/or mould remediation course. Minimum of one supervisor for every ten trained workers.

1.7 CLOSEOUT SUBMITTALS

.1 Maintain general log to provide permanent record of project. Maintain logs and other required documentation as part of permanent project file.

.2 Daily log must be available for inspection upon request by Departmental Representative.

1.8 INSTRUCTION AND TRAINING

.1 Before commencing work, provide Departmental Representative proof that worker had instruction and training in potential health hazards of mould exposure, handling of hazardous materials, in personal hygiene including protective clothing, in entry and exit from Mould Contaminated Work Area, and in use of disposal procedures including building materials.

.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 designated construction safety advisor.

1.9 WORKER PROTECTION

.1 Respirators suitable for protection against mould and acceptable to Provincial Authority having jurisdiction Non-powered disposable filter-type respirator of type half-face equipped with replaceable HEPA filter cartridges equipped with replaceable HEPA filter cartridges, personally issued to work and marked as to efficiency and purpose.

.2 Gloves and eye protection.

.3 Disposable paper coveralls including head covering.

.4 Ensure that no person required to enter Mould Contaminated Work Area has facial hair that affects seal between respirator and face.

.5 Eating, drinking and chewing are not permitted in Mould Contaminated Work Area.

.6 Before leaving Mould Contaminated Work Area, dispose of protective clothing as waste as specified.

.7 Ensure workers wash hands and face after leaving Mould Contaminated Work Area.

1.10 VISITOR PROTECTION

.1 Protective clothing and approved respirators Non-powered 1/2 face with eye protection to be worn by Authorized Visitors to Mould Contaminated Work Area.

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

.3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Mould contaminated work area.

1.11 HOURS OF WORK

.1 Typical work schedule – perform work during normal working hours. Be available to work continuously from beginning to end of project.

Part 2 Products

2.1 MATERIALS

.1 Drop Sheets: fibre reinforced polyethylene 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.

.2 Disposal bags: dust-tight 0.15 mm clear polyethylene waste bags.

.3 Wetting Agent: water to mist mould-containing material.

.4 Cleaning solution: detergent solution for damp wipe and/or mop.

.5 Fibre reinforced adhesive tape: used in sealing joints of fibre reinforced polyethylene sheets and for attachment of fibre reinforced polyethylene sheet to finished and unfinished surfaces. Fibre reinforced adhesive tape must be capable of adhering under both dry and wet conditions.

.6 Materials: provide materials such as fibre reinforced polyethylene sheeting, lumber, nails and hardware necessary to construct and dismantle barriers that isolate Mould Contaminated Work Area.

2.2 TOOLS AND EQUIPMENT

.1 Tools and equipment: suitable for use with microbial contamination and must be able to withstand de-contamination.

.2 Personnel protective equipment (protective clothing, personal respiratory filter cartridges, HEPA air filters, etc.): to be provided in sufficient quantities for duration of project.

.3 Vacuum cleaners: equipped with HEPA filters.

.4 Ladders and/or scaffolds: adequate length, strength and sufficient quantity to support work schedule.

.5 Exhaust air fan systems: equipped with HEPA filters and be capable of providing sufficient exhaust air to create a minimum pressure differential of 5 to 7 Pa and to allow sufficient flow of air through area.

Part 3 Execution

3.1 PREPARATION OF MOULD CONTAMINATED WORK AREA

.1 Mould Contaminated Work Area and areas adjacent and around area to be unoccupied. Vacating is recommended in case of infants (less than12 months old), elderly people, persons having undergone recent surgery, immune suppressed people or people with chronic inflammatory lung diseases.

.2 One supervisor for every ten trained workers is required.

.3 Approved supervisor must remain within Mould Contaminated Work Area at all times during disturbance, removal or other handling of mould-contaminated materials.

.4 Turn off HVAC system[s] prior to starting remediation work to prevent contamination and dust dispersal to other areas of building.

.5 Seal off windows, doorways, skylights, ducts, grilles, diffusers and other openings between Mould Contaminated Work Area and uncontaminated areas outside Mould Contaminated Work Area with fibre reinforced polyethylene sheeting and fibre reinforced adhesive tape to minimize migration of contaminants to other parts of building.

.6 Clean movable objects within proposed Mould Contaminated Work Area using HEPA filtered vacuum equipment, damp wipe surfaces and remove such objects from Mould Contaminated Work Area to a secure and clean area.

.7 Clean fixed objects within proposed Mould Contaminated Work Area using HEPA filtered vacuum, damp wipe surfaces and cover with one layer of fibre reinforced polyethylene sheeting securely fastened with fibre reinforced adhesive tape.

.8 Remove visible dust from surfaces in Mould Contaminated Work Area where dust is likely to be disturbed during course of mould remediation work. Use HEPA vacuum and damp wipe the area.

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

.10 Erect critical barriers around perimeter of Mould Contaminated Work Area before remediation using single layer of 0.15 mm fibre reinforced polyethylene sheeting extending from floor slab to as close as possible to underside of above floor slab. Seal gaps due to ductwork, piping conduits with layer of 0.15 mm fibre reinforced polyethylene sheeting. For larger areas, a steel or wooden stud frame can be erected and fibre reinforced polyethylene sheeting attached to it.

.11 Use 0.15 mm fibre reinforced drop sheets tightly sealed with fibre reinforced adhesive tape over flooring in work area[s].

.12 Ensure that containment area is under negative pressure. Use HEPA filtered fan exhausted outside of Mould Contaminated Work Area to create negative pressure.

.13 In smaller easily contained areas, use HEPA vacuum cleaner nozzle within enclosure. Locate vacuum canister outside enclosure.

.14 Before beginning work, at each access to contaminated 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 MOULD HAZARD AREA (25 mm) / NO UNAUTHORIZED ENTRY (19 mm) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) / BREATHING MOULD DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)'.

.15 Do not begin remediation work until barriers are inspected and authorization is given by Consultant.

3.2 MICROBIAL REMEDIATION

.1 Use sprayer (low-velocity, fine-mist) to mist (not wet) materials containing mould to be cut or scraped. Perform work to reduce dust creation to lowest levels practicable.

.2 Porous materials with more than 1 square metre of mould contamination and/or dampness to be removed, discarded and replaced.

.3 Porous materials identified as lightly contaminated that can be cleaned by HEPA vacuuming, washing, damp wiping can be reused, but to be discarded and replaced if possible.

.4 Dispose of contaminated building materials as specified.

.5 During mould remediation, should Departmental Representative suspect contamination of areas outside enclosed Mould Contaminated Work Area, contractor to stop remediation work and immediately decontaminate affected areas. Eliminate causes of such contamination. Prohibit unprotected individuals from entering these contaminated area[s] until air and swab sampling and a visual inspection determines area[s] are free from contamination.

.6 Notify Departmental Representative of mould contaminated 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.

3.3 REPAIR AND CLEAN-UP

.1 During Mould Remediation and immediately after completion of mould remediation, clean enclosure starting within top of enclosure and working down to floor. Clean areas using HEPA vacuum and/or by damp mopping with cleaning solution.

.2 Perform restoration of designated Mould Contaminated Work Area as specified.

.3 Leave areas dry and visibly free from contamination, debris and dust.

.4 After clean-up within barrier dismantle, barrier and dispose of as specified.

.5 Perform final thorough clean-up of work areas and adjacent areas affected by work using HEPA vacuum and/or damp mopping with cleaning solution.

3.4 WASTE DISPOSAL

.1 Place debris and mould-containing waste in doubled-bagged dust-tight 0.15 mm fibre reinforced clear polyethylene waste bags. Treat drop sheets and disposable protective clothing as waste; fold these items to contain dust, and place in plastic bags. Securely seal bags.

.2 Cover large items that have heavy mould growth with fibre reinforced polyethylene sheeting and sealed with fibre reinforced adhesive tape before they are removed from enclosure.

.3 Clean exterior of each waste-filled bag using damp cloths or HEPA vacuum prior to removal from Mould Contaminated Work Area.

.4 Remove waste bags from site and dispose. There are no special requirements for disposal of mouldy materials; as such they can be disposed of in landfill.

3.5 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

.1 Return objects moved to temporary locations to their location. Ensure objects are cleaned before been moved into cleaned areas.

.2 Remount objects removed to former positions.

.3 Re-establish mechanical and electrical systems to proper working order. Install new filters into HVAC system[s] serving the affected area as part of remediation.

3.6 FINAL CLEARANCE

.1 Consultant to conduct thorough visual inspection to detect visible accumulations of dust or bulk materials remaining in work area. Should dust, debris, microbial contamination, or residue be detected repeat cleaning, until area meets approval.

END OF SECTION

PART 1 GENERAL

1.1 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM D698, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600kN-m/m³),

1.2 EXISTING CONDITIONS

.1 Examine subsurface investigation report which is available for inspection from Departmental Representative.

.2 Known underground and surface utility lines and buried objects are as indicated on site plan.

1.3 PROTECTION

.1 Protect and/or transplant existing fencing trees, landscaping, natural features, bench marks, buildings, pavement, surface or underground utility lines which are to remain as directed by Departmental Representative. If damaged, restore to original or better condition unless directed otherwise.

.2 Maintain access roads to prevent accumulation of construction related debris on roads.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Excavated or graded material existing on site may be suitable to use as fill for grading work if approved by Departmental Representative.

PART 3 EXECUTION

3.1 STRIPPING OF TOPSOIL

.1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected as determined by Departmental Representative.

.2 Commence topsoil stripping of areas as indicated after area has been cleared of brush, weeds and grasses and removed from site.

.3 Strip topsoil to depths as indicated. Avoid mixing topsoil with subsoil.

.4 Stockpile in locations as directed by Departmental Representative. Stockpile height not to exceed 2 m.

.5 Dispose of unused topsoil as directed by Departmental Representative.

3.2 GRADING

.1 Rough grade to levels, profiles, and contours allowing for surface treatment as indicated.

.2 Rough grade to following depths below finish grades:

.1 250mm for concrete slabs and walks precast paving units.

.3 Slope rough grade away from building 1:50 minimum.

.4 Grade ditches to depth as indicated.

.5 Prior to placing fill over existing ground, scarify surface to depth of 150 mm. Maintain fill and existing surface at approximately same moisture content to facilitate bonding.

.6 Compact filled and disturbed areas to corrected maximum dry density to ASTM D698, as follows:

.1 85% under landscaped areas.

.2 95% under paved and walk areas.

.7 Do not disturb soil within branch spread of trees or shrubs to remain.

3.3 TESTING

.1 Inspection and testing of soil compaction will be carried out by testing laboratory designated by Departmental Representative.

.2 Submit testing procedure, frequency of tests, to Departmental Representative for approval.

3.4 SURPLUS MATERIAL

.1 Remove surplus material and material unsuitable for fill, grading or landscaping as directed by Departmental Representative.

END OF SECTION

1 GENERAL

1.1 GENERAL REQUIREMENTS

.1 Refer to Division 1, General Requirements

.2 All contract documents to form an integral part of this section

1.2 DESCRIPTION

.1 This section specifies methods and measures to be undertaken for the protection of existing vegetation to remain.

1.3 RELATED DOCUMENTS

.1 This specification forms part of the Contract Documents and is to be read, interpreted and coordinated with all other parts.

.2 Section 31 23 13 – Rough Grading

1.4 TREE AND PLANT PROTECTION REQUIREMENTS

.1 Temporary protective fencing shall be installed by the contractor prior to start of all clearing and/or construction around existing trees, understorey plants and shrubs as directed by the consultant, which have been noted on the plans as to remain. Damage to trees and shrubs during construction shall be reported immediately to the Consultant for assessment and direction with regard to repair by the contractor.

.2 The contractor shall notify the consultant in writing a minimum of seven (7) days prior to the removal of temporary protective fencing. Removal of temporary protective fencing shall occur only after all work potentially injurious to the trees, understorey plants or shrubs is complete and written request has been reviewed by the consultant.

.3 The contractor shall protect the existing trees, understorey plants and shrubs to remain and their root systems from:

.1 Dumping of refuse.

.2 Chemically injurious materials and liquids.

.3 Noxious materials in solution caused by runoff and spillage during mixing and placement of construction materials, and drainage from stored materials.

.4 Continual or prolonged puddling of running water.

.5 Flooding, erosion, excessive wetting and drying resulting from de-watering and other operations.

.6 Vehicular and foot traffic to ensure that compaction of soil over root systems is avoided.

.4 Protect trees, understorey plants and shrubs to remain against cutting, breaking, skinning or other mechanical damage to roots, branches and trunks.

.5 Do not stockpile materials, park vehicles or drive within the tree and shrub protection area.

2 PRODUCTS

2.1 MATERIALS

.1 38mm X 89mm (2" X 4") wood frame of a height, length and extent shown on landscape drawings.

.2 Dupont Vexar L-70 or Tensar BX20551 plastic orange snow fencing, or other approved equal.

3 EXECUTION

3.1 INSTALLATION OF PROTECTIVE FENCING

.1 Erect temporary protection fence wood frame as shown on the Landscape drawings around all vegetation marked to remain, prior to the start of any demolition or construction activity.

.2 Unroll snow fencing around the entire perimeter of fence frame, tension and affix with staples on wood frame.

.3 Erect protective barrier at the boundaries of the vegetation protection zone, no closer to the plant material than the drip line, or as marked on the Landscape drawings.

.4 Maintain barrier in sound condition throughout the construction process. Immediately repair any damage.

3.2 EXCAVATION AROUND VEGETATION TO BE PROTECTED

.1 Do not excavate within drip lines of vegetation to be protected, unless otherwise indicated on drawings or as directed by Consultant.

.2 If any excavation within the drip line of vegetation is necessary:

.1 Hand excavate to minimize damage to root systems.

.2 Use narrow tine spading forks to probe and comb soil to expose roots.

.3 Relocate roots into backfill areas whenever possible. If large, main lateral roots are encountered, expose beyond excavation limits as required to bend and relocate without breaking.

.3 Utility trenching within drip line of trees:

.1 Tunnel under and around roots by hand digging.

.2 Do not cut main lateral roots.

.3 Cutting of smaller roots that interfere with installation of new work shall be done with clean, sharp pruning tools.

.4 Roots, which are encountered immediately adjacent to location of new construction and cannot be readily relocated, shall be cut 150mm (6") back from new construction.

.5 Protection of Exposed Roots: Do not allow exposed roots to dry out prior to placement of permanent cover. Provide one of the following temporary remedial measures:

.1 Provide temporary earth cover.

.2 Pack with wet peat moss.

.3 Pack with four (4) layers of wet, untreated burlap.

.6 Temporarily support and protect exposed roots from damage until permanently relocated and covered with backfilled topsoil. Water puddle backfilled topsoil around roots to eliminate voids and air pockets.

.7 Where directed by Consultant, extend pruning operations to restore natural shape of entire tree(s) or shrub(s).

.8 All pruning operations, including root systems, to be carried out by I.S.A. Certified Arborist using clean sharp pruning tools. Do not break, chop and mutilate roots or branches during pruning operations.

.9 Trees and shrubs to remain are to be thoroughly watered as required to maintain a healthy condition throughout the construction period. Contractor to document all watering operations and submit to the consultant one (1) copy of documentation at Substantial Performance.

.10 All excavation within root zone to be performed under direction of an I.S.A. Certified Arborist.

3.3 GRADING AROUND VEGETATION TO BE PROTECTED

.1 Do not raise or lower grades within the drip line of vegetation to be protected, unless directed by Consultant.

3.4 CLEAN UP

.1 Clean site of all surplus material or equipment associated with Work of this Section.

.2 Recycle or dispose of off-site at approved disposal location, all surplus material and refuse.

.3 Do not burn or bury any surplus material or refuse

END OF SECTION

1. GENERAL

1.1 GENERAL REQUIREMENTS

.1 Refer to Division 1, General Requirements

.2 All Contract Documents form an integral part of this section.

1.2 1.2 DESCRIPTION

.1 This section specifies the supply, preparation and placement of the growing medium.

1.3 RELATED SECTIONS

.1 This specification forms part of the Contract Documents and is to be read, interpreted and coordinated with all other parts.

.2 Section 31 23 13 - Rough Grading

1.4 SITE CONDITIONS

.1 Report in writing to Consultant, prior to commencing work, any conditions or defects encountered on the site, upon which the work of this section depends, and which may adversely affect the performance of the work.

.2 Do not commence work until such conditions or defects have been investigated and corrected.

.3 Commencement of work implies acceptance of surfaces and conditions and no claim for damages or resulting extra work will be accepted except where such conditions cannot be determined prior to construction.

1.5 UTILITIES

.1 Before commencing work, establish location and extent of all utility lines in the area of any excavations.

.2 Contractor to stake in field and maintain utility locations until job is completed.

.3 The Contractor is responsible for all damage and subsequent repair to underground utilities resulting from his operations.

1.6 TESTING

.1 Submit to the Consultant a copy of a growing medium analysis from a laboratory approved by the consultant. The analysis shall be of tests done on the proposed growing medium from samples taken at the supply source within three weeks immediately prior to soil placement. Cost of initial analysis and subsequent tests to ensure compliance with

specification shall be borne by the contractor. Results of these tests shall be presented to the Consultant for review **BEFORE** any growing medium delivery to site.

.2 The analysis will include measurement of percent sand, fines, (silt and clay), and organic matter to total 100%, pH, lime required to achieve pH 6.5, water soluble salts, total carbon to total nitrogen ratio, total nitrogen and available levels of phosphorus, potassium, calcium and magnesium.

.3 The analysis shall outline the testing laboratory's recommendations for amendments, fertilizer and other required modifications to make the proposed growing medium meet the requirements of this specification.

.4 At the discretion of the consultant submit up to two additional samples at intervals outlined by consultant of growing medium taken from material delivered to site. Samples shall be taken from a minimum of three random locations and mixed to create a single uniform sample for testing. Results of these tests shall be presented to the Consultant for review.

.5 Failure to satisfy these contractual requirements could result in the contractor being required to remove unacceptable growing medium at their expense.

1.7 SAMPLES

.1 Growing Medium Sample: Submit for review by Consultant one composite sample. Sample shall be a composite of at least three samplings from the proposed source, and shall be at least one (1) litre in volume.

1.8 QUALITY CONTROL

.1 Carry out growing medium preparation and placement such that the final product matches the standard established by the approved sample, which has incorporated the recommendations for amendment by the testing laboratory.

1.9 PRODUCT HANDLING

.1 Do not move or work growing medium or additives when they are excessively wet, extremely dry, frozen or in any manner which will adversely affect growing medium structure. Growing medium whose structure has been destroyed by handling under these conditions will be rejected and shall be replaced by the contractor at no cost to the owner.

.2 Protect growing medium and additives against extreme wetting by rain or other agents, and against contamination by weeds and insects.

.3 Deliver fertilizer and other chemicals in manufacturer's original containers. Protect against damage and moisture until incorporated into the work.

.4 All growing medium will be delivered to site **premixed** from a recognized growing medium source ensuring consistency throughout the mix.

2. PRODUCTS

2.1 MATERIALS

.1 Imported Growing Medium: Growing medium shall be imported and stockpiled on site in an approved location. Stockpiling work shall be such that the soil is not damaged or contaminated.

.2 Growing medium shall be substantially free of pests, roots, wood, construction debris, undesirable grasses including crabgrass or couch grass, noxious weeds or other foreign deleterious objects.

.3 Fertilizer:

.1 Complete commercial synthetic slow release fertilizer meeting the requirements of the Canada Fertilizer Act, packed in water proof containers, clearly marked with the name of the manufacture, weight and N-P-K analysis.

.2 Formulation ratio: as per soil test recommendations.

.4 Lime:

.1 Coarse (unless noted otherwise), ground dolomite limestone containing minimum 85% of total carbonates.

.5 Organic Material: submit sample prior to shipping to site:

.1 Organic Material shall be Soil Amender, black/brown in colour, manufactured by Fraser Richmond Bio-Cycle, Richmond, B.C., or pre-approved equal.

.6 Wood Residuals: Content of wood residuals such as Fir or Hemlock sawdust present in the growing medium shall not cause the total Carbon to total Nitrogen ratio to exceed 40:1. Cedar or redwood sawdust shall not be present in growing medium.

.7 Sand: Sand will be river pump sand or pit run sand satisfying the following gradation, (dry weight basis):

SIEVE SIZE	CLASSIFICATION	% RETAINED
No. 4 (4.76mm)	Gravel	0%
No. 10 (2.0 mm)	Fine gravel	0-5%
No.18 (1.0 mm)	Very coarse sand	5-10%
No.35 (0.50 mm)	Coarse sand	15-20%
No.60 (0.25 mm)	Medium sand	50-75%
No.140 (0.105 mm)	Fine sand	5-15%
No. 270	Very fine sand	0-2%
Passing No. 270	Silt, clay	0%

.8 Construction Adhesive: PL 200 Construction Adhesive by OSI Sealants Inc. or approved equal.

.9 Drainage Medium for Planters: Nudrain WD/15 manufactured by Nilex Geotechnical Products Inc., Burnaby B.C., or approved equal.

2.2 STANDARD FOR PREPARED GROWING MEDIUM PLACED ON GRADE

.1

Particle Size Class and Properties	% Dry Weight of Total Growing Medium Lawns	 Other Planting
Coarse Gravel (larger than 25 mm)	0-1%	0-1%
All Gravel (Larger than 2 mm)	0-5%	0-5%
	% of Dry Weight of Growing Medium Excluding Gravel	
Sand (larger than 0.05 mm and smaller than 2 mm)	75-90%	60-80%
Silt (larger than 0.002mm and smaller than.05 mm)	2-15%	8-18%
Clay (smaller than .002 mm)	2-15%	2-18%
Maximum Clay and Silt Combined	**15%**	**20%**
Organic Content	5-10%	14-20%
Acidity (pH)	6.0 - 7.0	4.5 - 6.5

.2 Salinity: Maximum saturation extract conductivity: 3.0 millihos/cm at 25 degrees C.

.3 Carbon to nitrogen ratio: Maximum 40:1

.4 Drainage: Percolation shall be such that no standing water is visible 60 minutes after at least 10 minutes of moderate to heavy rain or irrigation.

2.3 STANDARD FOR PREPARED GROWING MEDIUM PLACED ON SLAB

.1

Particle Size Class and Properties	% Dry Weight of Total Growing Medium Lawns	 Other Planting
Coarse Gravel (larger than 25 mm)	0-1%	0-1%
All Gravel (Larger than 2 mm)	0-5%	0-5%
	% of Dry Weight of Growing Medium Excluding Gravel	
Sand (larger than 0.05 mm and smaller than 2 mm)	80-90%	70-80%
Silt (larger than 0.002mm and smaller than.05 mm)	0-15%	10-15%
Clay (smaller than .002 mm)	0-15%	0-15%
Maximum Clay and Silt Combined	**15%**	**15%**
Organic Content	3-5%	14-20%
Acidity (pH)	6.0 - 7.0	4.5 - 6.5

.2 Salinity: Maximum saturation extract conductivity: 3.0 millihos/cm at 25 degrees C.

.3 Carbon to nitrogen ratio: Maximum 40:1

.4 Drainage: Percolation shall be such that no standing water is visible 60 minutes after at least 10 minutes of moderate to heavy rain or irrigation.

3. EXECUTION

3.1 MIXING PREPARED GROWING MEDIUM

.1 Screen growing medium with mechanical screening equipment. Thoroughly mix imported growing medium with recommended additives during screening process to produce a growing medium with the particle size class and properties as specified. No hand mixing will be accepted unless specifically approved by the Consultant.

.2 Screening and mixing of imported growing medium on site will be not be allowed. All growing medium is to arrive pre-mixed by a recognized supplier with the following exceptions:

.1 Addition of organic matter recommended by the soil analysis which may be top-dressed and cultivated into the surface layer of the supplied growing medium.

.2 Addition of amendments to existing site soils recommended by the soil analysis.

3.2 PLANTING AREA PREPARATION

.1 Off-Slab Sub Grade Preparation:

.1 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials from the areas to receive growing medium.

.2 Scarify and or break up and loosen existing sub grade areas to a minimum depth of 200 mm (8”) to allow for proper drainage in all planting areas and tree pits.

.3 Ensure proper drainage in all tree pits shrub beds, planters, and miscellaneous planting areas

.2 On-Slab Planting Area:

.1 Verify planter drains and or slab drains have been installed.

.2 Verify that waterproof membrane drain mat and protection board have been installed.

3.3 PLACEMENT OF DRAINAGE MEDIUM ON ARCHITECTURAL SLAB

.1 Verify that architectural slab has been water proofed and protection board if required is in place prior to the placement of drainage medium.

.2 Place drainage medium over entire planter bottom providing cut outs or block outs for planter drains and clean outs.

.3 Install drainage medium on vertical face of planter walls.

.1 Extend drainage medium to within 25 mm (1") of finished grade of growing medium. Growing medium to be held a minimum of 25 mm (1") from top of planter.

.2 Cut away plastic waffle core with sharp knife. Fold filter medium over top and behind plastic waffle.

.3 Secure drainage medium to planter wall with Construction Adhesive.

3.4 PLACEMENT OF GROWING MEDIUM

.1 Do not place growing medium until Consultant has reviewed subgrade.

.2 Ensure that irrigation lines to be installed have been reviewed by the Consultant prior to the placing of growing medium.

.3 Break up and loosen subgrade and compacted gravel areas to allow for proper drainage in planting areas and planted islands.

.4 Place growing medium over prepared subgrade and compact by light rolling such that it is firm against deep footprints. Do not compact growing medium more than necessary to meet this requirement.

.5 Place prepared growing medium in compacted layers of 100 mm to 150 mm (4" to 6") in planting areas on grade.

.6 Ensure proper drainage in all shrub and tree pits.

.7 Place growing medium to the required finished grades with adequate moisture, in uniform layers, during dry weather, over approved, dry, unfrozen sub grade where planting is indicated to the following minimum depths:

.1 Trees pits: 900 mm (3'-0")

.2 Shrub beds: 450 mm (1'-6")

.3 Ground cover areas: 300 mm (1'-0")

.4 Sodded lawn areas: 300 mm (1'-0")

.5 Seeded lawn areas: 100 mm (4")

.8 Place growing medium to 25 mm (1") from top elevation of adjacent, curb or planter wall unless otherwise noted on drawings.

3.5 GROWING MEDIUM AMENDMENTS AND FERTILIZERS

.1 Fertilizers shall be added to bring growing medium fertility within the ranges set out in this standard, as recommended by the laboratory soil specialist on the basis of testing of the growing medium.

.2 Lime, (if required) may be added to the growing medium at the time of screening. All other fertilizers (such as nitrogen, phosphorus and micronutrients) shall be added to the growing medium, as required, by thorough cultivation after it is in place. Top dressing lime shall be cultivated in to the top 100mm of the growing medium.

.3 Spread lime with mechanical spreaders over entire area of growing medium at rate recommended by the testing laboratory. Mix lime thoroughly into upper 100 mm (4”) of growing medium.

.4 Spread fertilizers with mechanical spreaders over entire surface area of growing medium at rate recommended by the testing laboratory. Do not mix fertilizer into the growing medium

.5 Mix amendments well into the depth of supplied growing medium recommended by soil analysis for growing medium and utilizing the recommended method of tillage

.6 Applied lime must not come in contact with the nitrogen - phosphate - potash fertilizers. There shall be at least one week separation between the application of lime and fertilizers.

3.6 WEED CONTROL

.1 Eliminate all weeds and weed roots from growing medium.

.2 Have method for elimination of weeds reviewed by consultant prior to any action by the contractor.

3.7 FINISH GRADING

.1 Manually fine grade growing medium areas to contours and elevations shown on drawings or as directed by consultant. Eliminate rough spots and low areas to ensure positive drainage.

.2 Leave surface smooth, uniform, firm against deep foot printing, with a fine loose texture.

3.8 SURPLUS MATERIAL

.1 Dispose of surplus growing medium not required for fine grading and landscaping off site.

END OF SECTION

1. GENERAL

1.1 GENERAL REQUIREMENTS

.1 Refer to Division 1, General Requirements.

.2 All Contract Documents form an integral part of this section.

1.2 RELATED WORK

.1 This specification forms part of the Contract Documents and is to be read, interpreted and coordinated with all other parts.

.2 Section 31 23 13 - Rough Grading

.3 Section 32 91 21 - Growing Medium Preparation and Placement

1.3 DELIVERY AND STORAGE

.1 Deliver grass seed in original containers showing:

.1 Analysis of seed mixture.

.2 Percentage of pure seed.

.3 Year of production.

.4 Date when tagged and location.

.5 Percentage germination.

.6 Name and address of distributor.

.2 Deliver wood fibre mulch in moisture-proof containers indicating manufacturer, content and net air-dry mass.

.3 Deliver erosion control agent in moisture-proof containers showing manufacturer, content and net mass.

.4 Store all seed, hydraulic mulch, fertilizers and related materials in dry, weather proof storage place and protect from damage by heat, moisture, rodents or other causes until time of seeding. Do not deface labels or other identification.

1.4 GUARANTEE

.1 The Contractor hereby warrants that the work of this section will remain free of defects for a period of one (1) year after Substantial Performance of landscape works on project.

.2 End of Warranty inspection will be conducted by the Consultant to identify deficiencies to be corrected by contractor in accordance with this specification.

1.5 SITE EXAMINATION

.1 Do not carry out the work of this section in areas or over surfaces that have not been properly prepared. Examine site prior to the commencement of work to verify surface preparation is complete.

2. PRODUCTS

2.1 MATERIALS

.1 Grass seed mixture: Certified Canada No. 1 Grade in accordance with Government of Canada Seeds Act and Regulations and having minimum germination of 75% and minimum purity of 95%.

1. 25% Axcella 2 Annual Ryegrass
2. 25% Replicator Perennial Ryegrass
3. 25% Sheep's Fescue
4. 23% Cindy Lou Creeping Red Fescue
5. 2% Micro-clover
6. 20% Longfellow II Chewing Fescue

Seeding rate: As specified by supplier for hydroseeding application

.2 Mulch: specially manufactured for use in hydraulic seeding equipment, non-toxic, water activated, green colouring, free of germination and growth inhibiting factors with following properties:

.1 Made from wood cellulose fibre.

.2 Organic matter content: 95% plus or minus 0.5%.

.3 Value of pH: 6.0.

.4 Potential water absorption: 900%.

.3 Tackifier: water soluble vegetable carbohydrate powder: Guar J 3000 or approved equal.

.4 Water: potable, free of impurities that would inhibit germination and growth.

.5 Fertilizer:

.1 To Canada "Fertilizers Act" and "Fertilizers Regulations".

.2 Complete synthetic, slow release fertilizer with 35% of nitrogen content in water-insoluble form.

3. EXECUTION

3.1 WORKMANSHIP

.1 Care must be taken to prevent overspray onto buildings, signs, guide rails, fences, plant material, utilities and surfaces other than the ones intended.

.2 Clean-up immediately any material resulting from overspray, to satisfaction of the Consultant.

.3 Do not perform work under adverse field conditions such as heavy rainfall, wind speeds over 10 km/h, frozen ground or ground covered with snow, ice or standing water.

.4 Protect seeded areas from trespass with fencing until plants are established.

3.2 PREPARATION OF SURFACES

.1 Sub-grade preparation:

.1 Prepare sub-grade to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours.

.2 Ensure grade transitions are smooth and even, such that ponding cannot occur on sub grade surface.

.3 Remove any rocks bigger than 100mm (4”) in diameter, tree or shrub roots, foreign materials, or any other debris.

.4 Rough grade to a depth of 100mm (4”) below finished grade in all hydroseeded areas, as shown on Landscape Plans.

.5 Scarify sub-grade to a depth of 100mm (4”) to ensure proper drainage in all seeded areas.

.6 Do not disturb existing soil within dripline of trees or shrubs to be retained.

.2 Growing medium placement:

.1 As per Section 32 91 21 - Growing Medium Preparation and Placement

.2 Fine grade areas be seeded free of humps and hollows. Ensure areas are free of deleterious and refuse materials.

.3 Cultivate areas to be seeded to a depth of 50mm (2”).

.4 Ensure areas to be seeded are moist to depth of 150mm before seeding.

.5 Obtain Consultant’s approval of finished grade before seeding application.

3.3 FERTILIZING PROGRAM

.1 Fertilize prior to fine grading, ensuring that fertilizer is well incorporated into and equally distributed through growing medium.

.2 Fertilize on a monthly basis during establishment and warranty periods between April 30th and August 1st.

3.4 PREPARATION OF SLURRY

.1 Measure quantities of materials by weight or weight-calibrated volume measurement. Supply equipment required for this work.

.2 Charge required water into seeder. Add material into hydraulic seeder under agitation. Pulverize mulch and charge slowly into seeder.

.3 After all materials are in the seeder and well mixed, charge tackifier into seeder and mix thoroughly to complete slurry.

3.5 SLURRY APPLICATION

.1 Hydraulic seeding equipment:

.1 Slurry tank.

.2 Agitation system for slurry to be capable of operating during charging of tank and during seeding, consisting of recirculation of slurry and/or mechanical agitation method.

.3 Capable of seeding by 50m hand operated hoses and appropriate nozzles.

.4 Tank volume to be certified by certifying authority and identified by authorities "Volume Certification Plate"

.2 Apply when winds less than 10 km/h using equipment suitable for area involved.

.3 Measure quantities of material by mass or mass-calibrated volume measurement.

.4 Do not leave seed, fertilizer, mulch and water slurry in tank for more than 4 hours. Slurry left in tank over specified time is not to be used and is to be disposed of off-site.

.5 Slurry mixture applied per hectare:

.1 Seed: rate of application as specified by supplier

.2 Mulch and Erosion Control Agent: 1980 kg/hectare (1800 lbs/acre)

.3 Water, minimum: 17000 litres. (4490 gal.)

.6 Apply slurry uniformly, at optimum angle of application for adherence to surfaces and germination of seed.

.1 Using correct nozzle for application.

.2 Using hoses for surfaces difficult to reach and to control application.

.7 Re-apply where application is not uniform.

.8 Remove slurry from items and areas not designated to be sprayed.

.9 Protect seeded areas from trespass satisfactory to Site Supervisor

.10 Remove protection devices as directed by Site Supervisor

3.6 MAINTENANCE DURING ESTABLISHMENT PERIOD

.1 Maintenance of plants shall begin immediately after planting operation and shall continue until Final Acceptance of the work.

.2 Repair and reseed dead or bare spots to allow establishment of seed prior to acceptance.

.3 Mow grass to 50mm whenever it reaches height of 70mm. Remove clippings which will smother grass.

.4 Fertilize seeded areas after first cutting in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles; water in well.

.5 Control weeds by mechanical or chemical means utilizing acceptable integrated pest management practices. If chemical means are used, comply with approved Integrated Pest Management Program.

.6 Keep soil moist during germination period and adequately water grassed areas until accepted by Consultant.

.7 Apply water to ensure moisture penetration of 75 to 100 mm (3” to 4”). Control water application to prevent wash-outs.

3.7 FINAL ACCEPTANCE

.1 Seeded areas will be accepted by Landscape Architect provided that:

.1 Seeded areas have been maintained for a minimum period of (90) days after Substantial Performance.

.2 Seeded areas are uniformly established.

.3 Seeded areas are free of rutted, eroded, bare or dead spots and are 98% free of weeds.

.4 Areas have been mown at least twice.

.5 No surface growing medium is visible when grass has been cut to height of 38mm (1-1/2").

.6 Areas have been fertilized.

.2 Areas seeded after October 1st will achieve final acceptance in following spring, one month after start of growing season provided acceptance conditions are fulfilled.

3.8 MAINTENANCE DURING WARRANTY PERIOD

.1 Perform following operations from time of acceptance until end of warranty period:

.1 Repair and reseed dead or bare spots.

.2 Mow seeded areas and remove clippings, as directed by Site Supervisor, and in accordance with following schedule:

.1 Frequency: Bi-weekly

.2 Height of cut: 38mm (1 ½")

.3 Fertilize seeded areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles and water in well.

3.9 CLEANING

.1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION