CITY OF NELSON

The Corporation of the City of Nelson

Suite 101, 310 Ward Street, Nelson British Columbia V1L 5S4

Office of the Finance and Purchasing Manager

Request for Proposal
Coke & Gas Works Exterior Revitalization
2019-P-02

Proposal Summary

This project involves conservation work to restore the exterior of the City's historic Coke & Gas Works Building located at 610 Railway Street, Nelson BC. The renovation is to address deterioration of the building exterior using methods in accordance with the Standards and Guidelines for the Conservation of Historic Places in Canada. Proponents who are interested in participating in this RFP process will be required to demonstrate their approach to complete this project and show that they have the skill set, experience and capability to conduct the work to these standards.

Key Dates

Date of Issue	February 14, 2019
Mandatory Site Meeting	February 27, 2019 @ 9:00am (See Section 1.19 for details)
Clarification Question Deadline	March 8, 2019 @ 4:30pm
RFP Closing Date	March 21, 2019 @ 2:30pm
Anticipated Award	End of March 2019
Contract Completion	October 1, 2019

Every attempt will be made to meet all the dates listed above; however, the Owner reserves the right to modify any or all dates at its sole discretion.

Proposal documents are available for download at:

- BC Bid at http://www.bcbid.gov.bc.ca
- City of Nelson web site at http://www.nelson.ca/bids

Paper copies are available upon request. Contact information for the Manager of Finance and Purchasing is provided in Section 1.2.7.

Contents

ATTACHMENT “A1”
INSTRUCTIONS TO PROPONENTS

1.0 Instructions, Terms and Conditions

The following terms and conditions will apply to this RFP. Proposal Submission indicates acceptance of all the terms that follow, and that are included in any addenda issued by the Owner. Provisions in Proposal Submissions that contradict any of the terms of this RFP will be as if not written and do not exist.

1.1 Definition

For the purposes of this RFP, unless the context otherwise requires:

a) "Owner", "City", "The City", "Corporation", "Nelson Hydro", "City of Nelson" means The Corporation of the City of Nelson
b) "RFP" means request for proposal
c) "Proponent" means the individual or company that submits, or intends to submit, a proposal submission for consideration.
d) "Proposal Submission" means a response submitted to the RFP
e) "must", "mandatory", "require", or "shall" means a requirement that must be met in order for the Proposal Submission to be considered
f) "should" or "desirable" means a requirement having a significant degree of importance to the objectives of RFP
g) "Contract" means the written form of agreement between the Owner and the successful Proponent of the RFP process.
h) "Contractor" means the successful Proponent to this RFP process who enters into a written Contract with the Owner
i) "Closing Time" means the day and time specified in this document by which the Proposal Submission must have been received by the Owner
j) "Substantial Performance" is defined in the lien legislation applicable to BC.
k) "Services" encompasses the work being done by the Contractor for the Owner.
l) "Force Majeure" means, exhaustively, any:
    i. war, hostilities (whether war is declared or not), invasion, act of foreign enemies;
    ii. rebellion, terrorism (or threat of terrorism), revolution, insurrection, military or usurped power or civil war;
    iii. riot, civil commotion or disorder, strike or lockout by persons other than the Contractor's personnel and other employees, subcontractors or any other person for whom the Contractor is responsible;
    iv. natural catastrophe, such as an earthquake, forest fire, landslide or flood; or
    v. change in Law or action by a competent authority, which makes it illegal or impossible for a party to perform its obligations under this Contract;

1.2 Submission of Proposals

1.2.1 Proposal Submissions are to be addressed to the Finance and Purchasing Manager Suite 101-310 Ward Street, Nelson B.C., V1L 5S4, and must be received before 2:30 p.m., Pacific Standard Time, March 21, 2019.

1.2.2 Proposal Submissions may be either delivered by courier or otherwise in person at the main floor of City Hall at the address specified above. City Hall is open Monday through Friday from 8:30 am to 4:30 pm and is closed on weekends and statutory holidays.

1.2.3 Proposal Submissions must be in sealed envelopes or packages. The outside of the

envelope holding the Proposal Submission should include the RFP title and number, Proponent's name and mailing address. Proposal Submissions received after the Closing Time will be returned unopened at the Proponent's expense.

1.2.4 Proposals submitted by email or direct facsimile are not acceptable and will be rendered non-compliant.

1.2.5 Two complete hard copies of the Proposal Submission should be submitted.

a) Each Proponent must complete its Proposal Submission by submitting in accordance with the instructions set in the instructions, terms and conditions.

b) Proposal Submissions which contain qualifications, or omissions, making the comparison with other RFP's difficult, may be rejected by the Owner.

c) A pdf file of the entire Proposal Submission should be included inclusive of all forms, on a CD/DVD/memory stick. The electronic copy should be a single file arranged in the same order as the hard copy.

1.2.6 Proponents should examine the RFP documents immediately upon receipt and notify the Purchasing Manager representative, not less than five (5) working days before RFP closing of any errors, omissions or ambiguities found in the documents. This will allow the Owner, at its discretion, to issue addenda prior to closing.

1.2.7 All questions related to this RFP are to be submitted in writing via email as per the following:

- Technical questions regarding this proposal should be directed to:
  Peter Sinstadt, Facility Maintenance Manager
  Email: psinstadt@nelson.ca

- Questions regarding submission requirements, timing or similar contractual matters should be directed to:
  Suzanne Rorick, CPA, CMA, Manager, Finance and Purchasing
  Email: srorick@nelson.ca

1.2.8 The deadline for clarification questions is March 8, 2019 before 4:30 pm. Answers to questions will be posted through addendums. Any questions submitted after this date may not be answered.

1.3 RFP Process

Not a Tender Call

This RFP is not a tender call and the submission of any response to this RFP does not create a tender process. This RFP is not an invitation for an offer to contract and it is not an offer to contract made by the Owner.

By this RFP, the Owner reserves to itself the absolute and unfettered discretion to invite submissions, consider and analyze submissions, select short-listed Proponents or attempt to negotiate an agreement with the successful Proponent as the Owner considers desirable. A Proposal Submission by a Proponent and its subsequent receipt by the Owner does not represent a

commitment on the part of the Owner to proceed further with any Proponent or project. Though the Owner fully intends at this time to proceed through the RFP process, the Owner is under no obligation to award a contract as a result of this RFP.

Without limiting the generality of the foregoing, the Owner reserves the right to:

a) terminate this RFP process at any time;
b) to waive any informality, defect, irregularity, mistake or insufficiency in a Proposal Submission and proceed with that respondent;
c) to accept any Proposal Submission or alternative Proposal Submissions, in whole or in part, if the Proposal Submission is deemed to be in the best interest of the Owner;
d) to select one or more preferred Proponents, to negotiate with one or more of those Proponents, and ultimately enter into a Contract upon the same or different terms and conditions as contemplated by this RFP;
e) reject any or all Proposals Submissions, or any part thereof, and may proceed to purchase the goods and/or services or contract the work under any terms or in such other manner as it may elect, or to postpone or forego such purchase, award or agreement altogether without cost or penalty to the Owner;
f) disqualify or reject any Proposal Submission that does not comply with the terms or meet the requirements of the RFP;
g) require clarification where a submission is unclear prior to award.

The Owner will not necessarily accept the lowest price or any Proposal Submission. Any implication that the lowest price or any Proposal Submission will be accepted is hereby expressly negated.

Award of this Contract is subject to the approved budget

1.4 In the event that only one Proposal Submission is received, the Owner reserves the right to:
a) return that Proposal Submission unopened;
b) open the Proposal Submission privately without reference to the Proponent. If the Proposal Submission is opened and it is in excess of the Owner's budget, the Owner reserves the right to re-issue the RFP documents for new public re-bid without revisions being made to the RFP documents and without disclosing the single Proposal Submission.

1.5 Proposal Submissions must be executed by an authorized signatory of the proponent utilizing the Proponent Commitment contained in Attachment C of this RFP.

1.6 All Proposal Submissions and subsequent information or material received shall become the property of the Owner and will not be returned. The Proposal Submissions will be held in confidence by the Owner subject to the provisions of the Freedom of Information and Protection of Privacy Act.

1.7 Proposal Submissions may be withdrawn by submitting a written request to the Purchasing Manager at any time prior to the scheduled Closing Time.

1.8 Proposal Submissions remain valid, and may not be withdrawn, for a period of sixty (60) days following the date of closing of this RFP.

1.9 Proponents must not attempt to communicate directly or indirectly with any staff member, Contractor representative of the Owner, including the evaluation committee and any elected officials of the

Owner, or with members of the public or the media about a project described in this RFP, or otherwise in respect of the RFP other than as expressly directed or permitted by the Owner. Unauthorized contact may be cause for the rejection of the Proponent's Proposal Submission.

1.10 The Proponent, including all firm, corporation or individual members of a Proponent, will promptly disclose to the Owner any potential conflict of interest and existing business relationships they may have with the Owner or evaluation committee. The Owner reserves the right to disqualify any Proponent that in its opinion has a conflict of interest, whether such conflict exists now or is likely to arise in the future.

1.11 The Owner will not accept any responsibility for costs incurred by any Proponent in responding to this RFP, including the provision of any additional material or attendance at any meeting. Proponents will be solely responsible for any and all costs and expenses.

1.12 The Owner and its representatives, agents, consultants and advisors will not be liable to any Proponent, or any firm, corporation or individual member of a proponent, for claims, whether for costs, expenses, loss or damages, or loss of anticipated profits, or any matter whatsoever, suffered or incurred by the Proponent, or any firm, corporation, or individual member of a Proponent, in preparing and submitting a Proposal Submission, or participating in the RFP process or negotiations for the Contract, or any activity related to or arising out of this RFP.

1.13 Any change notices, appendices and addenda issued for this RFP shall be considered part of this RFP document.

1.14 It is the responsibility of each Proponent to submit all required documents as outlined in this RFP. Failure to quote on all requirements set out may disqualify your Proposal Submission.

1.15 This RFP and the successful Proponent's response may form part of any Contract entered into.

1.16 Any information acquired about the Owner by a Proponent during this RFP process, or after termination of the process, must not be disclosed unless authorized by the Owner.

1.17 Pricing will be firm for the Contract period, unless this RFP states otherwise.
Prices quoted are to be:

a) in Canadian dollars;
b) inclusive of all costs to deliver the work and/or goods per specifications of this RFP and is to include applicable Provincial Sales Tax (PST) and Goods and Services Tax (GST). GST is to be shown separately.

1.18 All addenda or further information will be published on the City of Nelson website http://www.nelson.ca/bids and BC Bid. It is the responsibility of the Proponent to monitor these web sites to check for updates.

1.19 Mandatory Site Meeting

Proponents are fully responsible for obtaining all information for the preparation of this RFP and for the execution of the work. A mandatory site meeting to the project site will be provided by an authorized representative. Without limiting the generality of the foregoing, the Proponent shall satisfy themselves of any special risks, contingencies, regulations, safety requirements and other circumstances which may be encountered.

Please be advised that there is a risk of flight cancellation at our local airports due to weather. Interested parties may wish to have a travel contingency plan as there will not be a second site visit offered.

The mandatory site meeting will be held on February 27, 2019. Proponents should register in advance by emailing Peter Sinstadt at psinstadt@nelson.ca. Proponents are to meet at the work site located at 610 Railway St., Nelson, BC by 9:00AM

Late arrival or failure to attend will lead to the non-acceptance of the Proponent's submission by the Owner; therefore, it is in the best interest of the Proponent to arrive early.

All information discussed during the site meeting will be documented along with any clarification requests. The information will be issued via addendum after the site meeting.

1.20 The Contractor acknowledges that it has complied, and will continue to comply during the performance of Contract, with the provisions of all applicable third party contracts and all applicable laws in accepting this Contract.

The laws of British Columbia govern this RFP and subsequent Contract, the courts of British Columbia have exclusive jurisdiction over any disputes under it, and all provisions of the International Sale of Goods Act (BC) are specially excluded.

1.21 Brand Names

Unless otherwise stated, if and wherever the specifications state a brand name, a make, the name of manufacturer, a trade name or a vendor catalogue number, it is for the purpose of establishing a grade or quality of material only. It is not intended to rule out the use of other equivalent materials or equipment.

1.22 Qualification

By submitting a Proposal Submission, the Proponent is representing that it has the competence, qualifications and relevant experience to do the work and will employ competent people, properly trained and instructed to effectively, efficiently and safely perform the requirements of the work. All personnel are to be presentable and professionally competent to conduct themselves and the work.

1.22 The Proponent shall possess the necessary legal patents and/or has legal permission to manufacture, sell and/or service the products(s) it will supply. Documented proof shall be provided by the Proponent, upon the Owner's request.

1.23 Local Preference

Under Purchasing Policy 1200.00.010, the Owner will give preference to local suppliers of goods and services, assuming compliance with relevant legislation and trade agreements, and assuming their pricing, quality and experience are comparable with non-local suppliers. Local shall mean a permanent business that operates from a property that is owned or rented by the business within the boundaries of the West Kootenay area as defined in Schedule C of the policy.

1.24 After selection of a preferred Proponent the Owner may request negotiations which could include discussion of the terms and conditions in the Contract and minor modifications of scope and price. Following which a signing of Contract documents and the awarding of a Contract will be made by the Purchasing Manager.

If the preferred Proponent and the Purchasing Manager cannot agree on Contract language in the Contract document, the process will be terminated, no purchase order shall be issued and the Owner will begin negotiations with the next preferred Proponent.

1.25 Changes in the Work

The City and the Contractor may, by agreement in writing, without invalidating this Agreement, make changes by altering, adding to or deducting from the Services. In such event, the Contractor's Fixed Fee and Project timeline schedule shall be adjusted accordingly. Any Services rendered by the Contractor to the Owner beyond those Services set out in the Contractor's Proposal and the Owner's Terms of Reference shall be considered to be Additional Services, with the Contractor to be compensated therefore on an hourly or per diem basis to be agreed upon by the Owner and the Contractor in writing prior to the Contractor rendering any such Additional Services to the Owner.

1.26 Holdback

a) Ninety per cent (90%) of each invoice for completed work will be paid by the Owner, ten per cent (10%) of invoiced completed work will be held back until completion of the Contract. The Contractor shall submit a separate invoice to the Owner for release of the holdback funds.

b) The Owner shall approve release of the 10% holdback referred to in this section to the Contractor no sooner than fifty-five (55) days following satisfaction of all of the following conditions:

i. Owner representative certifies the date of Substantial Performance of the work;

ii. the Contractor provides to the Owner a clearance letter from WorkSafeBC indicating all current assessments due from the Contractor have been paid;

iii. the Contractor provides proof to the Owner attesting that all monies owing to the Contractor's workers, subcontractors, material and equipment suppliers and government agencies have been paid.

c) **Deficiency Holdback**

Prior to Substantial Performance of the work and in addition to the lien holdback, a deficiency holdback shall be established for work determined by the Owner to be defective or incomplete (the "Deficiency Holdback"). The Owner shall establish the amount of the Deficiency Holdback as twice the estimated cost to rectify defective work and finish incomplete work using the services of another contractor or the Owner's own forces. No part of the Deficiency Holdback shall become payable until all of the defective work is corrected and all of the work is complete. If the defective or incomplete work is not corrected or completed within a reasonable time as determined by the Owner, then all or a portion of the Deficiency Holdback as determined by the Owner may be retained by the Owner to be applied against the loss and damage suffered by the Owner to correct or complete the work.

1.27 Upon award the successful Proponent will be required to complete the form of agreement (sample attached), acquire a City of Nelson business licence, and provide proof of insurance and a WorkSafeBC clearance letter. Once the Contract is fully executed a signed copy will be returned to the Contractor and a purchase order will be issued. This PO number must be referenced on all invoices

1.28 The Owner requires all Contractors to be paid by direct deposit. Upon award, the Contractor will be required to provide their banking and contact information to the Owner. Invoices are paid net 30 days

1.29 After the date for Proposals Submissions, a Proponent may make a change to the makeup of the Proponent's membership team only with express written approval of the Owner. The Owner may refuse to permit changes of members who in the judgment of the Owner have qualifications that were unique and essential to the Proponent.

1.30 Force Majeure

a) No party shall be deemed to be in breach of this Contract or otherwise liable to another party in any manner whatsoever for any failure or delay in performing its obligations under this Contract reasonably due to Force Majeure.

b) If either party's performance of its obligations under this Contract is affected by an event of Force Majeure, then:

i. it shall give written notice to the other parties, specifying the nature and extent of the event of Force Majeure, as soon as reasonably practicable after becoming aware of the event of Force Majeure;

ii. performance of such obligation(s) shall be deemed suspended but only for a period equal to the delay reasonably caused by such event;

iii. it shall not be entitled to payment from any of the other parties in respect of extra costs and expenses incurred as a result of the event of Force Majeure; and

iv. it shall use all reasonable diligence to mitigate the cause and the result of the event of Force Majeure and to remedy the situation and resume its obligations under this Contract.

c) Notwithstanding the obligations of a party affected by an event of Force Majeure pursuant to the whole section on Force Majeure, if the event of Force Majeure renders it impossible or impractical for the Contractor to provide the supply in accordance with this Contract for a period of at least 14 days, the Owner may terminate this Contract upon notice delivered to the Contractor at any time following the expiration of such period of 14 days.

1.31 Termination and Suspension

BY THE OWNER

The Owner may, subject to the provisions of this section, by written notice of default to the Contractor, terminate the whole or any part of this Contract in any one of the following circumstances:

a) if the Contractor fails to make delivery of the supplies, or to perform the services within the time specified herein or any extension thereof; or

b) if the Contractor fails to perform any of the other provisions of this Contract, or so fails to make progress as to endanger performance of this Contract in accordance with its terms, and in either of these two circumstances, does not cure such failure within a period of ten (10) days, or such longer period as the Owner's Purchasing Manager may authorize in writing, after receipt of notice from the Purchasing Manager specifying any such failure.

In the event the Owner terminates this Contract in whole or in part as provided in the above clause, the Owner may procure, upon such terms and in such manner as the Owner's Purchasing Manager may deem appropriate, supplies or services similar to those terminated, and the Contractor and his surety shall be liable to the Owner of any excess costs for such similar supplies or services, provided that the Contractor shall continue the performance of this Contract to the extent not terminated under the provisions of this clause.

BY THE CONTRACTOR

Should the Owner fail to perform any provisions of this Contract, the Contractor may notify the Owner in writing that it is in default of its contractual obligations and instruct it to correct the default within seven (7) working days of receiving the notice. Failure to comply with the default request extends to the Contractor the option, without limiting any other right or remedy the Contractor may have, of immediately terminating this Contract and requesting settlement for all Services performed and all disbursements incurred pursuant to this Contract and remaining unpaid as of the effective date of such termination.

Should the Contractor's services be suspended by the Owner at any time for more than thirty (30) calendar days in any calendar year through no fault of the Contractor, then the Contractor shall have the right until such suspension is lifted by the Owner, to terminate this Contract upon giving three (3) working days written notice thereof to the Owner. In such event, the Contractor will be paid by the Owner pursuant to this Contract, for the completed tasks as per the scope of work that remain unpaid as of the effective date of such termination.

1.32 Indemnification of Corporation

Notwithstanding the provision of any insurance coverage by the Owner,
the Contractor shall indemnify and save harmless the Owner, its elected officials, officers, employees, agents, solicitors, successors, assigns or representatives from and against any losses, claims, damages, actions and causes of action, costs (including legal costs), expenses, judgments and proceedings arising out of or in connection with any error, or negligent or malicious act or omission, by the Contractor or any of its officers, agents, representatives, employees or sub-consultants, except to the proportionate extent of any contributorily negligent or wrongful act or omission of the Owner, or any of its elected officials, officers, employees, agents, solicitors, successors, assigns or representatives. The terms and conditions of this indemnity provision shall survive the completion of all Services and the termination of this Agreement for any reason.

1.33 FOIPPA

All documents submitted in response to this RFP shall become the property of the Owner and as such will be subject to the disclosure provisions of the British Columbia Freedom of Information and Protection of Privacy Act.

ATTACHMENT "A2"
GENERAL CONDITIONS AND INSURANCE

THE CORPORATION OF THE CITY OF NELSON

GENERAL CONDITIONS

& INSURANCE REQUIREMENTS

Where services are provided or service is provided as part of the goods purchased, the following will also apply:

2.0 GENERAL

The Contractor shall be deemed the "Prime Contractor" for the works site under the Regulations of the Workers Compensation Act and Occupational Health and Safety Regulation and must fulfill all of the obligations required of a "Prime Contractor".

2.1 No Claim for Compensation

Except as expressly and specifically permitted in these instructions to Bidders, no Bidder shall have any claim for any compensation of any kind whatsoever, as a result of participating in the RFP, and by providing a Bid Submission each Bidder shall be deemed to have agreed that it has no claim.

2.2 Manner of Performance

The whole of the work and the manner of performing same shall be done in a professional, workmanlike manner, and all personnel shall have an adequate experience and background in the work required, and to the entire satisfaction and approval of the Owner.

2.3 Inspection

2.3.1 Periodic inspection of the work areas will be made by the Owner to verify that the service supplied by the Contractor is adequate in all respects. If any deviations from this exist, the Contractor will be notified either verbally or in writing of the corrective measures to be taken.

Upon notification, the Contractor must proceed without delay to institute corrective measures. Such periodic inspections shall not relieve the Contractor in any way from making his own inspections to ensure that the work is being satisfactorily performed.

2.3.2 Supplies

All supplies shall be subject to inspection and test by and shall meet the approval of the Owner and the decision shall be final and binding upon all parties. The Contractor shall adopt such inspection measures as may be considered necessary by the Owner to ensure that the supplies supplied or to be supplied hereunder are at all times of a uniform grade and of the kind and quality herein specified.

In case any supplies or lots of supplies are defective in material or workmanship or otherwise not in conformity with the specifications of the Contract, the Owner shall have the right either to reject them or to require their correction. Supplies or lots of supplies which have been rejected or required to be corrected shall be removed or corrected in place, as requested by the Owner, by and at the expense of the Contractor promptly after receipt of notice by the Contractor from the Owner.

2.4 Materials, Appliances, Employees

Unless stipulated otherwise, the Contractor shall provide and pay for all material, labour, tools, equipment,

power, transportation and other facilities for the execution of the work.

The Contractor shall not employ on the job any unfit person nor anyone not skilled in the work assigned to them. Anyone under the influence of, or in the possession or use of intoxicating beverages or drugs on the work shall be sufficient reason to declare an employee as unfit.

The Contractor and/or their employees shall not enter into any dispute with, and shall maintain a courteous relationship with the public while in the process of executing the Contract work.

2.5 Emergencies or non-compliance by Contractor

The Owner's representative has authority to stop the progress of the work whenever in their opinion such stoppage may be necessary to ensure the safety of life, or the structure, or of adjoining property.

The Owner's representative shall have, without limitation, the right to decide whether any part of the work has not been done as required by the Contract.

2.6 Changes in the Work

The Owner, without invalidating the Contract, may make changes by altering, adding to, or deducting from the work, the Contract price being adjusted accordingly. All such work shall be executed under the conditions of the original RFP.

2.7 Valuation of Changes

The value of any change or extra work shall be determined in one or more of the following ways:

a) by unit prices agreed to;
b) by estimate and acceptance in a lump sum;
c) by cost and percentage or by cost and a fixed fee.

In case of additional work to be paid for under method (c), the Contractor shall keep and present in such form as the Owner may require a correct account of the net cost of labour and materials, together with vouchers.

The Contractor may request or the Owner may order changes in the work or the timing or sequencing of the work that impacts the Contract price or the Contract time. All such changes in the work that affect the Contract time or Contract price shall be formalized in a change order prior to the commencement of the change in work, or the time or sequencing of the work. The Contractor must receive a change order before proceeding with a change and the Contractor shall strictly comply with the requirements of the change order.

In an emergency, when it is impractical to delay work, the Owner may issue an oral direction and follow up with a change order.

No payment on account of changes or extra work shall be made until the value thereof shall have been determined as herein provided.

2.8 Applications for Payment

The Contractor shall submit to the Owner an invoice or application for each payment and, if required, a statutory declaration, receipts or other vouchers showing his payments for labour.

2.9 Permits, Notices, Law & Rules

The Contractor shall apply and pay for all necessary permits or licences, including **City of Nelson Business License**, required for the execution of the work. The Contractor shall give all necessary notices and pay for all

fees required by law and comply with all laws, ordinances, rules and regulations relating to the work and to the preservation of the public health. The Contractor shall be responsible for the safety of all workmen and equipment on the project in accordance with all applicable safety legislation passed by Federal, Provincial and Local Authorities governing safety.

2.10 Local Conditions

The Contractor shall by personal inspection, examination, calculations or tests, or by any other means, satisfy themselves with respect to the local conditions to be encountered and practicability of the work and of the methods of procedure.

No verbal agreements or conversation with any officer, agent or employee of the Owner, either before or after the execution of the Contract, shall effect or modify any of the terms or obligations herein contained.

2.11 Compliance with Workers Compensation Regulations

The Contractor shall ensure compliance on his part with the Workers Compensation Act and any regulations thereunder, especially provisions of said Act or of regulations under said Act having to do with the prevention of accidents, the prevention of diseases and the provision of safe working conditions, including proper sanitation and ventilation.

In any case where pursuant to the provisions of the Workers Compensation Act, the Workers Compensation Board orders the Contractor in respect of his operations under this Contract to cease operations because of failure to install or adopt safety devices or appliances directed by the order of the said Board, or required under said Act or regulations thereunder or because said Board is of the opinion the conditions or immediate danger exist that would be likely to result in injury to any person, or because of lack of payment of an account due to the Board, the Owner on 24 hours written notice to the Contractor may terminate the Contract.

2.12 Protection of the Work, Property and Public

It shall be the Contractor's responsibility to ensure that all applicable statutory codes and provisos are conformed with, especially those regulating work in the vicinity of energised electrical circuits. The Contractor shall ensure that his personnel are properly qualified and be able to show proof of competency.

The Contractor shall be responsible for safety management for all persons who are present within the boundaries of the work site, including but not limited to the Contractor’s workers, the Subcontractor’s workers, the Owner or Engineer or any other inspector or agent appointed by either of them and other Contractor’s workers and anyone else.

2.13 Safety

The Contractor shall be solely and completely responsible for the overall safety program on the work site during the performance of the work, to ensure the safety of all persons at the work site, the physical facilities and buildings existing and under construction; and, to safely coordinate all activities on the work site. This requirement shall apply continuously and not be limited to normal working hours.

The Contractor shall observe and enforce all safety measures required by Workers Compensation Act of British Columbia and attendant regulations, the safety requirements of the Owner and all applicable statutes. In the event of discrepancy between such provisions, the most stringent provision will apply.

The Contractor shall investigate thoroughly the nature and conditions of the project as well as the requirements of the job procedures and should be prepared to , if warranted, implement a more comprehensive safety program than is required by the WorkSafeBC OHS Regulations.

The Contractor shall develop and be responsible to maintain a project-specific work site safety program, tailored specifically to the work of the Contract, and shall be acceptable in all respects to WorkSafeBC.

The Contractor shall make itself, its employees, subcontractors, suppliers, the Owner, the engineer and all others that the Contractor brings to the work site aware of the safety and security rules, regulations and requirements in effect at the work site.

The Contractor shall provide site safety orientation for all Contractor and subcontractor employees and visitors to the site. This presentation must be made before their work commences or an appropriately trained worker must escort them.

The Contractor shall be proactive in its approach towards safety and shall anticipate problems, correcting situations before they occur. The Contractor shall have a means of inspecting the work site to ensure all personnel meet or exceed the minimum safety requirements, all unsafe conditions are corrected immediately, and proper discipline is enforced. A lax attitude towards safety will not be tolerated on the work site.

2.14 Owner's Right to Do Work

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this RFP, the Owner, after five (5) days written notice to the Contractor, may without prejudice to any other right or remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

2.15 Work by Others

The Owner reserves the right to determine whether the Contractor or the Owner crews will perform the work. The decision will be made based on the scope of the work in question and will be the made at the Owner's discretion. If the Contractor is not available to perform the work scheduled as requested in the time frame as determined by the Owner, the Owner reserves the right to have work done by an alternate contractor or Owner crews. This work will only be undertaken upon discussion with the Contractor and mutually agreeing to this arrangement.

2.16 Owner's Right to Terminate Contract

If the Contractor should be adjudged bankrupt, or if the Contractor should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of the Contractor's insolvency or if the Contractor should refuse or fail to supply enough properly skilled workmen, proper equipment, or materials as specified, after having received seven (7) days notice in writing from the Owner or otherwise be guilty of a substantial violation of the provisions of the Contract, then the Owner may, without prejudice to any other right or remedy, by giving the Contractor written notice, terminate the employment of the Contractor and finish the work by whatever means the Owner may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment.

2.17 Contractors Right to Terminate Contract

If the work should be stopped under an order of any court, or other public authority through no act or fault of the Contractor or of anyone employed by them, or if the Owner should fail to pay to the Contractor within fourteen (14) days of its maturing and presentation, any sum certified by the Owner or awarded by arbitrators, then the Contractor may upon five (5) days written notice to the Owner stop work and/or terminate this Contract without prejudice to any other right or remedy, and recover from the Owner payment for all work executed and any loss sustained with reasonable profit and damages.

2.18 No Assignment or Sub-Letting of Contract Without Consent

The Contractor shall not assign, sub-let or let out as task work, any part of the work without first having had and obtained the consent in writing of the Owner, which consent the Owner may withhold in its absolute discretion. If the Owner should consent to any such assignment, sub-letting or letting out as task work of all or any part of the work, the Contractor shall by reason thereof, be in no way relieved from their responsibility for the fulfilment of said work, but shall continue to be responsible for the same in the same manner as if the said work had been performed by the Contractor themself.

2.19 Prices to be Accepted as Full Compensation

The price or prices provided for in the Contract shall be accepted by the Contractor as full compensation for everything furnished and done by the Contractor under this RFP, including all work required but not included in the items herein mentioned, and also for all loss or damage arising out of the nature of the work or the action of the weather, elements, or any unforeseen obstructions or difficulty encountered in the prosecution of the work, and for all expenses incurred by or in the consequence of any delay or suspension or discontinuance of the work as herein specified, and for well and faithfully completing the work as in this Contract provided.

The Contractor shall be deemed the "Prime Contractor" for the works site under the Regulations of the Workers Compensation Act and Occupational Health and Safety Regulation and must fulfill all of the obligations required of a "Prime Contractor".

2.20 Public Liability & Property Damage Insurance

The Contractor shall provide, at the time of request, certificates of insurance as outlined below:

Forthwith, the Contractor shall obtain and maintain in force during the period of service, and for a minimum of (twelve) 12 months following completion of the works, with an insurance company a policy of insurance acceptable to and approved in writing by the Owner, the following insurance with limits on an occurrence basis not less than those shown in respective items following:

Provision of Goods and Services

a) Commercial general liability insurance providing coverage not less than five million ($5,000,000.00) dollars each occurrence, all inclusive against liability for bodily injury, death or property damage on an occurrence basis The insurance shall include coverage for:
   (i) Premises and Operations Liability;
   (ii) Products and Completed Operations Liability (24 months after completion);
   (iii) Blanket Contractual Liability;
   (iv) Cross Liability;
   (v) Contingent Employers Liability;
   (vi) Personal Injury Liability;
   (vii) Broad Form Property Damage;
   (viii) Tenants Legal Liability ($1,000,000);
   (ix) Forest Fire Fighting Expense ($250,000);
   (x) Non-owned Auto Liability ($5,000,000);
   (xi) Sudden and Accidental Pollution ($1,000,000).

b) Automobile insurance for public liability and property damage providing coverage not less than five million ($5,000,000.00) dollars each occurrence, all-inclusive on owned vehicles.

c) Notwithstanding anything contained elsewhere herein, it is understood and agreed that the Owner shall not be liable for any loss or damage to Contractor's equipment including loss of use thereof. Evidence of coverage of the Contractor's equipment and a waiver of subrogation for the Owner should be provided.

d) The deductible or reimbursement for any policy required under this section shall not exceed five thousand dollars ($5,000.00) per claim.

The Contractor and/or his subcontractors, as may be applicable, shall be responsible for any deductible amounts under the policies of coverage/insurance.

e) Claims Handling – The Contractor shall be responsible for the prompt investigation, settlement and payment to claimants for the deductible portion of all insured losses up to a maximum of five thousand dollars ($5,000.00) per claim or occurrence until or unless advised otherwise.

The Contractor shall establish a claims and incident reporting procedure with the Owner for all claims and take directions from the Owner or Insurers on any claims for damage, injury or infringement that are likely to exceed five thousand dollars ($5,000.00) per claim or occurrence".

The General Contractor shall report all incidents of injury, including death, and or property damage occurring during their work activities and/or operations to the Owner as soon as practical after the accident or incident. The General Contractor must submit a copy of the accident or incident report to the Owner immediately upon completion.

The General Contractor shall cooperate and assist the Owner if further investigation of the accident or incident is deemed necessary. Any failure of any Insurer to pay any claim will in no way absolve the Contractor from its responsibilities and liability under the contract. The agreement of the Owner to maintain insurance under the contract is not deemed to extend or affect the obligation or liability of the Owner to the contractor. Further the city will not reimburse the contractor for their time spent with the claims process.

f) The "**Corporation of the City of Nelson**" shall be named as the additional insured in the commercial general liability policy. It is the responsibility of the Contractor to ensure that each subcontractor complies with the same insurance conditions as the Contractor. Each policy shall provide that no cancellation or material change reducing or restricting coverage in the policy shall become effective until after thirty (30) days notice of such cancellation or change shall have been given to the Owner by registered mail, and the Contractor will upon demand of the Owner deliver over to the Owner all such policy or policies of insurance and the receipt for payment of premium thereon; and should the Contractor neglect so to obtain and/or maintain in force any such insurance as aforesaid or delivery such policy or policies and receipts to the Owner, then it shall be lawful for the Owner to obtain and/or maintain such insurance, and the Contractor hereby appoints the Owner his true and lawful attorney to do all things necessary for this purpose. All monies expended by the Owner for insurance premiums under the provisions of this clause shall be charged to the Contractor.

The insurer and the insured consultant shall provide written notice to be delivered by hand, or sent by registered mail to the Owner at least thirty (30) days in advance of the activation date of any proposed cancellation, change or amendment restricting coverage under this policy.

ATTACHMENT "B"
SCOPE OF WORK/SPECIFICATION

4.0 Introduction

The Owner is seeking Proposal Submissions for construction services to revitalize the exterior of the Coke and Gas Works building located at 610 Railway Street and extend the useful life of the heritage structure. John Dam & Associates (JDA) was retained by the Owner to assess the condition of the structure and prepare specifications and a construction package for the necessary renovations.

The Owner has secured grant funding for the restoration and preservation of this heritage building. Initial construction is expected to begin in Spring 2019.

4.1 Background

Nelson Coke and Gas Works: A two-storey plus crawlspace and attic office building – footprint of approximately 150m^2

The Coke and Gas Works building has been vacant for a few years. Significant exterior restoration work is required to ensure the longevity of this historical building at the heart of Railtown.

A condition assessment was conducted by JDA on the building in 2017 and the following items of concern were identified:

- Mortar failure in multiple locations, including building separation of approximately 3/4” on one face.
- Original wood windows on four building facades & cupola requiring restoration, including sills.
- Replace roofs: main & cupola, entrance & stair canopies.
- Structural: roof structure, building separation, stairs and canopies.

4.2 Project Specifications

See Appendix 1 which includes:

- R000 Cover Sheet
- R101 Notes
- R300 East Elevation
- R301 West Elevation
- R302 North Elevation
- R303 South Elevation
- R400 Details
- Historic Masonry Repointing
- Historic Mortar
- Rough Carpentry
- Wood Siding
- Sheet Metal Flashing and Trim
- Historic Wood Windows and Doors
- Historic Repainting Exterior Surfaces

4.3 Contractor Requirements

- provision of appropriately trained staff, vehicles and equipment
- well-developed operating procedures
- swift response and excellent communication
- history of successful work on similar projects
- all invoicing shall include a detailed breakdown of the work completed

4.4 Response Content

Responses, exclusive of reference materials, should not exceed ten (10) pages of text and up to five (5) additional pages of graphics is acceptable. Proponents should include the following information in their proposal:

a) Complete **Form 1 – Proponent Commitment** and include in your proposal submission.
b) Demonstrate your overall work experience in completing similar scopes of work with emphasis on heritage buildings.
c) Clearly explain how you will undertake this project and the approach, methods and philosophy to be used including, but not limited to:

   i) A detailed plan outlining your approach to complete the restorations as shown on the drawings. Include a work plan, highlighting key milestones and/or deliverables, and a proposed schedule for completion that includes overall timing and anticipated completion dates. The Owner's preference is for construction to be completed in a timely manner.
   ii) Describe how you will address site safety for the duration of the project.
   iii) Propose a plan for site access for the duration of the project. The Gas Works building is adjacent to a busy road and there is limited parking. A veterinary clinic is within the vicinity and the Contractor will be required to cross the clinic property in order to conduct work on the back wall of the building.
   iv) Identify and describe the precautions you will take to prevent overloading of the existing structural elements and assemblies.
   v) Review the Steer Environmental Associates Ltd. Supplemental HazMat Assessment and risk assessment in Appendix 2. Describe your approach to dealing with lead based coatings on the windows and doors and silica dust management.
   vi) Describe your approach to disposal of materials from this project.

c) A company profile, project team description including information on key personnel and their qualifications, experience, and certifications that are relevant to the work involved in this project. Note: Changes to proposed key personnel will not be allowed without prior written consent from the Owner.
d) A minimum of three client references with current contact information (email and phone number) for which recent and similar exterior renovation services on heritage buildings has been completed.
e) All-inclusive contract price (before tax) along with a breakdown of hourly rates, expenses, per diems, and other fees.
f) Any applicable reference materials.

Proponents are encouraged to include any information that may be relevant and which may assist the Owner in the evaluation of their Proposal Submission.

4.5 Evaluation

The Owner will evaluate Proposal Submissions based upon, but not limited to the following:

Submission Requirements	Evaluation Ranking
Company profile, project team, relevant experience, skillsets and certifications, etc.	25%
Approach	25%
Availability, work plan, project schedule	15%
References (minimum of 3)	10%
Pricing, including hourly rates and disbursements	25%
Total	**100%**

Proposal Submissions will be reviewed and evaluated by a selection committee comprised of Owner representatives. During the evaluation process any or all of the Proponents may be invited to give written or oral presentations and/or participate in interviews with the committee.

It is the responsibility of the Proponent to ensure that their proposal clearly demonstrates how these evaluation criteria and factors will be addressed in their performance of the work.

By responding to this RFP, Proponents will be deemed to have agreed that the decision of the evaluation committee will be final and binding.

ATTACHMENT "C"
PROPOSAL COMMITMENT

Form 1 - Proponent Commitment

***** Failure to sign and submit this form will render the Proposal Submission non-compliant.*****

Bid Submissions shall be open for acceptance for a period of sixty (60) days from the Closing Time of this RFP.

If within this period the Owner delivers a Notice of Award by which the Owner accepts our Proposal Submission we will:

a. Within 15 calendar days of receipt of the notice of award deliver to the Owner:
   i. A "clearance letter" indicating the Contractor is in WorkSafeBC compliance
   ii. A copy of the insurance certificate referencing coverages as specified in Section 2.20 indicating that all such insurance coverage is in place
   iii. Proof of City of Nelson business licence payment

b. Upon receipt and acceptance by the Owner of the aforementioned documents, a Contract will be sent to the Contractor, who will be required to sign and return the Contract documents to the Owner within seven (7) calendar days of receipt.

We agree that if we receive written notice of award of this and do not adhere to the requirements above, we:

a. fail or refuse to deliver the documents as specified, or;
b. fail or refuse to commence the work as required by the notice to proceed,

then such failure or refusal will be deemed to be a refusal by us to enter into the Contract and the Owner may, on written notice to us, award the Contract to another party.

By way of submission, we acknowledge that we have received and carefully reviewed all of the RFP documents, including all posted addenda. Accordingly, we agree to perform and complete the requirements of this RFP for the price provided.

Our address is as follows: _____

_____

Telephone No _____

E-Mail Address _____

WCB Registration No _____

This submission is executed this

_____ day of _____, 20 _____

_____

Full legal name of corporation, partnership or individual

_____

Authorized signature

_____

Printed name of signatory

SAMPLE FORM OF AGREEMENT

FORM OF AGREEMENT

CONTRACT # 20##-P-##

THIS AGREEMENT made this _____ day of _____ , 20##.

BETWEEN:

XXXXXXXX.
(Herein called "The Contractor")

OF THE FIRST PART

AND:

THE CORPORATION OF THE CITY OF NELSON
(Herein called "The Corporation")

OF THE SECOND PART

l. In consideration of the covenants and agreements hereinafter contained and to be performed by the Owner, the Contractor hereby agrees with the Owner to do the following work:

a) To do the work of **DESCRIPTION** on the terms and conditions herein contained and at the prices herein specified and within the time limited, and:

b) To commence and actively proceed with the work within fourteen (14) days from the date of receiving notice from the Corporation to proceed with the work.

2. In consideration of the performance by the Contractor of all and singular the covenants and agreements herein contained and to be performed by the Contractor, the Corporation HEREBY COVENANTS AND AGREES with the Contractor that it will pay to him the sum or sums of money herein specified as payment for the fulfilment of the work.

3. IT IS UNDERSTOOD AND AGREED by and between the parties hereto that the specifications, the schedule of quantities and prices, the drawings, the proposal including all schedules thereto, the general conditions of contract, and further details and instructions in explanation thereof as may from time to time be given by the Corporation, shall be read with and form part of this agreement as if embodied herein.

4. IT IS FURTHER UNDERSTOOD AND AGREED between the parties hereto that the Contractor, in entering into and executing this agreement, has relied on their own examination of the site, the access to the site, and on all other data, matters, and things requisite to the fulfilment of the work, and not on any representation or warranty of the Corporation.

FORM OF AGREEMENT CONT'D.

5. IN THIS AGREEMENT, unless the context otherwise requires, "Contract" shall be construed to mean and include this agreement.

6. WHENEVER in this agreement it is stipulated that anything shall be done or be performed by either of the parties hereto, it shall be assumed that such party has thereby entered, and such party does hereby enter into a covenant with the other party to do or perform the same.

7. All grants, covenants, provisions and claims, rights, powers privileges and liabilities contained in this agreement shall be read and held as made by and with and granted to and imposed upon the respective parties hereto and their respective heirs, executors, administrators, successors, and assigns, in the same manner as if the words had been inscribed in all proper and necessary places, and in the event of more than one person being the Contractor/Consultant, the said grants, covenants, provisions and claims, rights, powers, privileges and liabilities shall be construed and held to be several as well as joint.

8. WHEREVER the singular or masculine is used throughout this Agreement, the same shall be construed as meaning the plural or feminine or body corporate, as the context or the parties hereto so require.

9. IN WITNESS WHEREOF the parties hereto have caused these presents to be executed, the day and year first above written.

SIGNED, SEALED AND DELIVERED IN THE PRESENCE OF

_____	_____
Contractor	Date
_____	_____
Witness	Date
_____	_____
Chief Financial Officer	Date

Appendix 1

Coke & Gas Works
Building Conservation
Nelson, British Columbia

Drawing List

No.	Revision	Date	By
1	Issued for Client Review	07/02/2018	JM
2	Issued for Quotation	11/28/2018	JM

Coke & Gas Works

Nelson, British Columbia

1051.002

Drawn By: JM

Designed By: JD

Date: 11/28/2018

Cover Sheet

R000

John Dam & Associates
Building Conservation Engineering

250-857-4771
john@jdabc.ca
jdabuildingconservation.ca

General Notes

1. The conservation work detailed in these drawings is a voluntary improvement to the existing structure with the design based on the current BCBC. The improvements meet the intent of the BBC but all structural aspects may not necessarily be addressed as required by the BCBC.

2. These drawings represent the scope of work to be completed for this project. The development of these drawings has been based on existing construction document, site photographs and measurements. Measurements for the purpose of designing new elements shall not be taken from these drawings unless expressly stated. The contractor shall notify JDA immediately upon discovery, if actual site conditions deviate from what is shown on these drawings.

3. The use of these drawings is to be limited to what is identified in the revision table as noted in the Terms of Use.

4. These drawings shall not be used for the production of shop drawings unless expressly authorized by JDA.

5. Shop drawings developed for work that may have an impact on the existing building assemblies or the work identified in these drawings shall be submitted to JDA for review.

Design Parameters

1. The work identified in these drawings has been designed in accordance with the Standards and Guidelines for the Conservation of Historic Places in Canada, recognizing the heritage value and associated character defining elements of the historic place.

2. The work identified in these drawings has been designed in accordance with the current BCBC. All recommendations provided by JDA regarding the scope of work are based on the requirements of the current BCBC unless otherwise disclaimed.

3. Guardrail details are designed to improve the current load carrying capacity of the guardrail. However, due to material and geometry of the existing rail, these improvements do not meet current code requirements. In addition, being made of wood and being in an exposed environment, the guardrail may deteriorate over time reducing its load carrying capacity.

Construction Parameters

1. The scope of work identified in these drawings does not address the necessary site access and safety measures that are to be taken by the contractor to complete the work. All works associated with site access and safety remains the responsibility of the contractor.

2. The contractor is to take the necessary precautions to prevent overloading the existing structural elements and assemblies including installing any necessary shores or other temporary reinforcement.

3. The contractor is to ensure all existing structural members remain undamaged while executing the scope of work identified in the drawings. Any structural members that must be cut, drilled or otherwise altered are to be reviewed by JDA prior to such works.

4. Any works necessary to complete the execution of the work identified in these drawings that may alter the safety and/or performance of the existing building structure and/or building envelope shall be completed in accordance with the current code requirements and remain the responsibility of the contractor.

Field Review

1. The site review services provided by JDA are limited to the review of the work shown in these drawings. The extent and frequency of the site review services remains at the discretion of JDA. The limitation of the site review services is in determining the work is being completed in general conformance to the drawings and associated specifications.

2. A minimum 48 hours notice is required to request a site review by JDA beyond the site review frequency that JDA provides.

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Coke & Gas Works

Nelson, British Columbia

1051.002

Drawn By: JM

Designed By: JD

Date: 11/28/2018

Notes

R101

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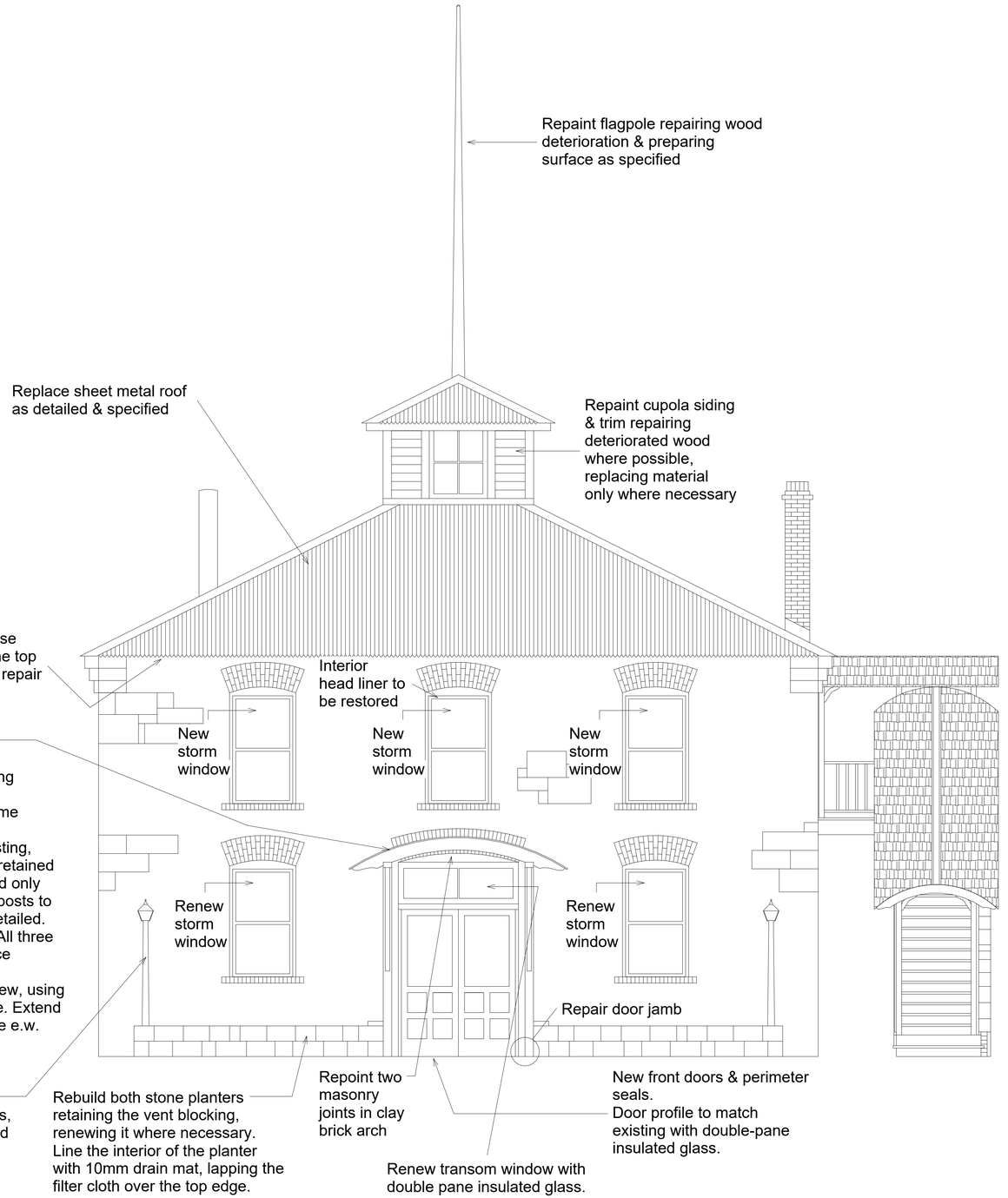

Entrance Canopy:

- Rebuild canopy, replacing existing posts with new members having the same dimensions & material properties. All other existing, original members to be retained where possible, replaced only where necessary. New posts to be set on new ftgs as detailed.
- Reinstate central horn. All three horns to have top surface profiled to shed water.
- Replace shingles with new, using existing fish scale profile. Extend 50 beyond canopy frame e.w.

1 East Elevation

Masonry Restoration:

- All elevations to be cleaned as specified
- Clay brick masonry and mortar joints to be painted as specified
- Granite mortar joints to be repointed where shown and as specified
- Masonry repairs to be completed as shown
- Repoint chimney cap
- Remove all unnecessary metal & wood inserts

Window/Door Restoration:

- Remove all interior window films & associated molding
- Replace all damaged, altered, and missing glass panes
- Restore windows that are noted as such
- Restore both north & south doors
- Restore storm windows having horizontal muntin bars. Fabricate new storm windows as necessary and as specified for those windows w/o renewable storm windows.
- Repair all window sills as specified & detailed
- Clean and paint all existing window frames insitu and as specified, completing all necessary wood repairs

Exterior Stairs:

- Renew base steps as required, reinstating missing tread
- Replace shingles w/ new, using existing fish scale profile. Extend 50 beyond canopy frame e.w.
- Reinforce upper landing guardrails as detailed
- Rebuild upper 'bridge' as detailed
- Repaint stair framing, replacing deteriorated wood frame members where necessary

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Coke & Gas Works

Nelson, British Columbia

1051.002

Drawn By: JM

Designed By: JD

Date: 11/28/2018

East Elevation

R300

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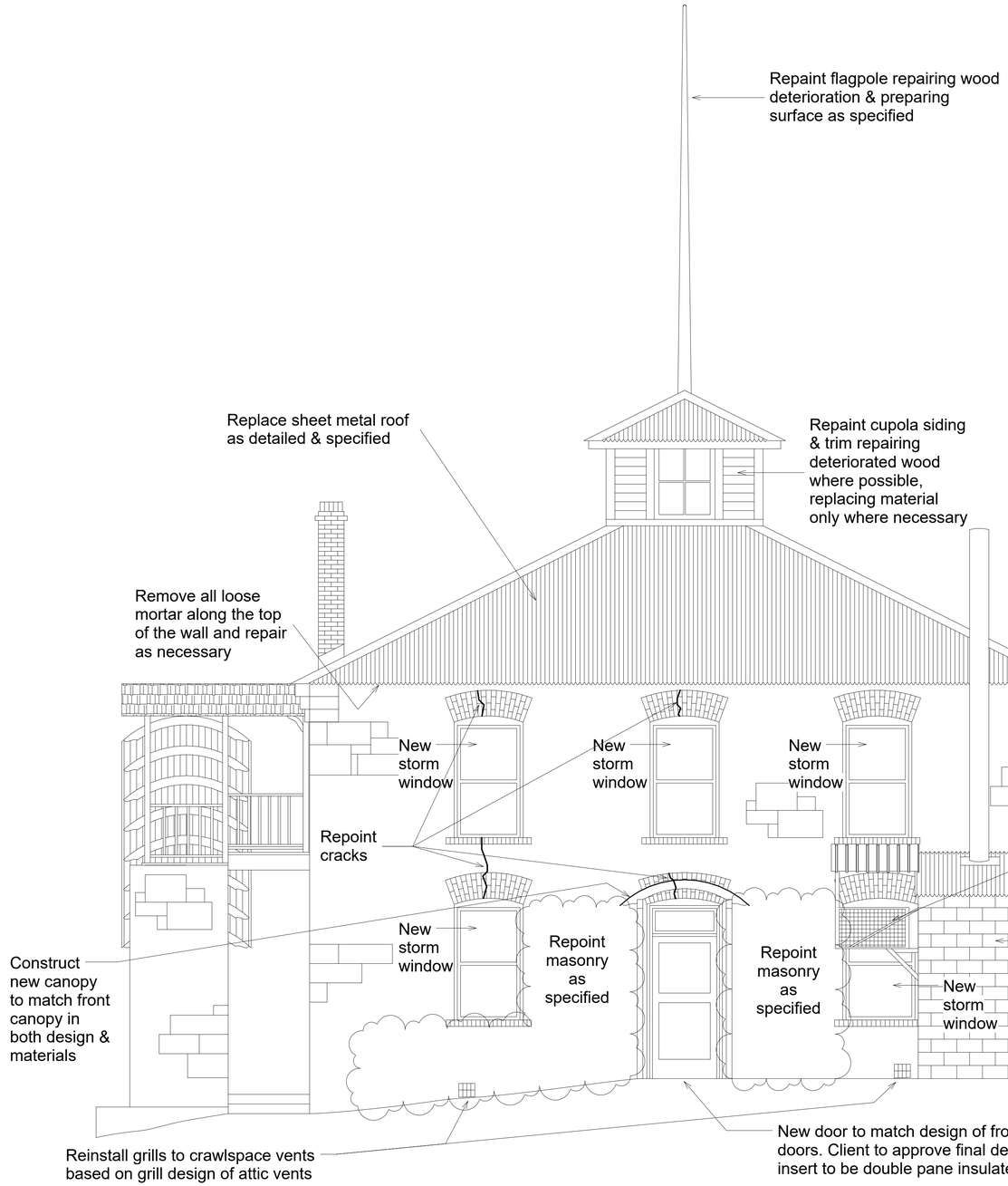

1 West Elevation

Masonry Restoration:

- All elevations to be cleaned as specified
- Clay brick masonry and mortar joints to be painted as specified
- Granite mortar joints to be repointed where shown and as specified
- Masonry repairs to be completed as shown
- Repoint chimney cap
- Remove all unnecessary metal & wood inserts

Window/Door Restoration:

- Remove all interior window films & associated molding
- Replace all damaged, altered, and missing glass panes
- Restore windows that are noted as such
- Restore both north & south doors
- Restore storm windows having horizontal muntin bars. Fabricate new storm windows as necessary and as specified for those windows w/o renewable storm windows.
- Repair all window sills as specified & detailed
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Exterior Stairs:

- Renew base steps as required, reinstating missing tread
- Replace shingles w/ new, using existing fish scale profile. Extend 50 beyond canopy frame e.w.
- Reinforce upper landing guardrails as detailed
- Rebuild upper 'bridge' as detailed
- Repaint stair framing, replacing deteriorated wood frame members where necessary

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Coke & Gas Works

Nelson, British Columbia

1051.002

Drawn By: JM

Designed By: JD Date: 11/28/2018

West Elevation

R301

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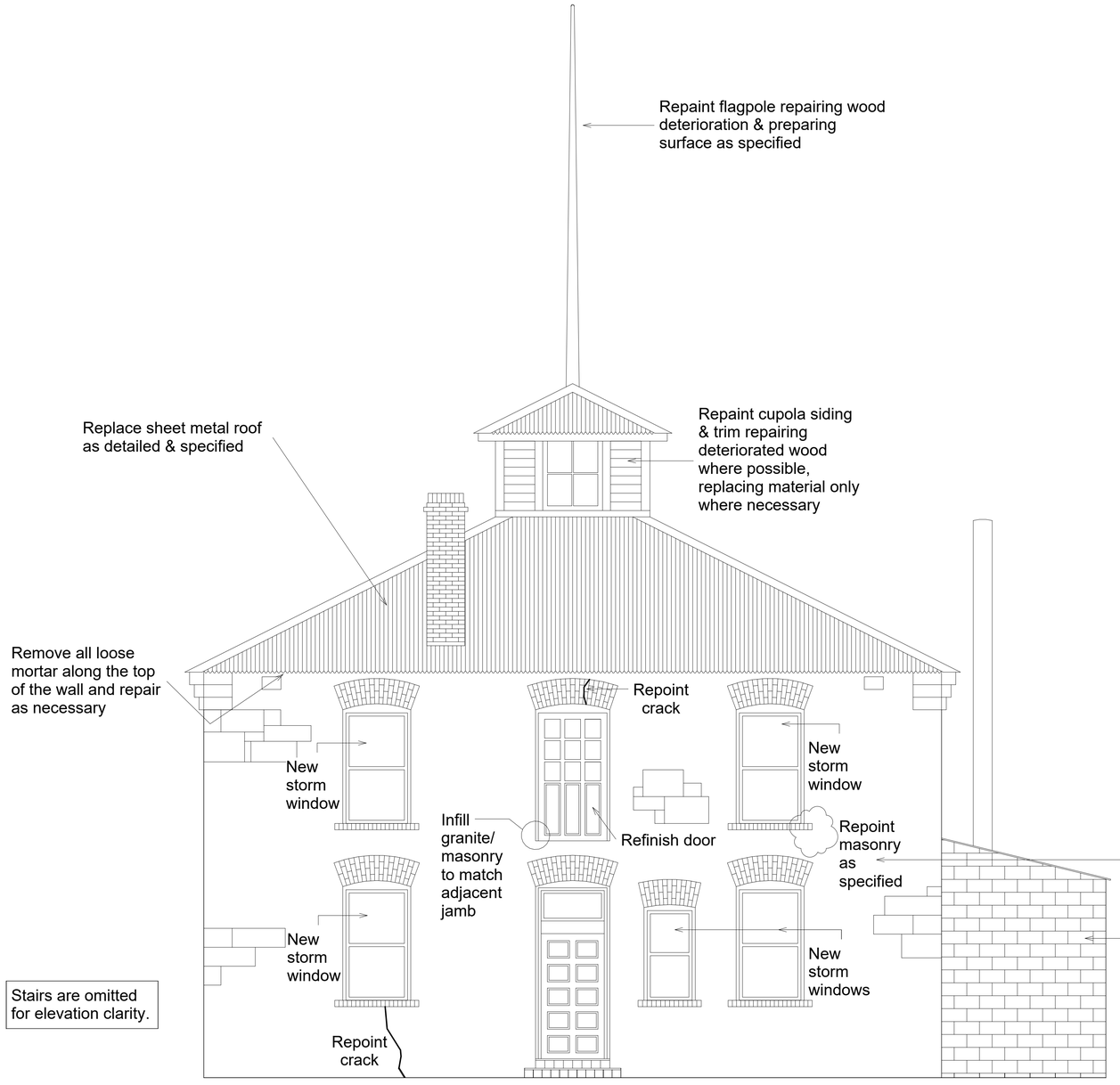

1 North Elevation

Masonry Restoration:

- All elevations to be cleaned as specified
- Clay brick masonry and mortar joints to be painted as specified
- Granite mortar joints to be repointed where shown and as specified
- Masonry repairs to be completed as shown
- Repoint chimney cap
- Remove all unnecessary metal & wood inserts

Window/Door Restoration:

- Remove all interior window films & associated molding
- Replace all damaged, altered, and missing glass panes
- Restore windows that are noted as such
- Restore both north & south doors
- Restore storm windows having horizontal muntin bars. Fabricate new storm windows as necessary and as specified for those windows w/o renewable storm windows.
- Repair all window sills as specified & detailed
- Clean and paint all existing window frames insitu and as specified, completing all necessary wood repairs

Exterior Stairs:

- Renew base steps as required, reinstating missing tread
- Replace shingles w/ new, using existing fish scale profile. Extend 50 beyond canopy frame e.w.
- Reinforce upper landing guardrails as detailed
- Rebuild upper 'bridge' as detailed
- Repaint stair framing, replacing deteriorated wood frame members where necessary

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Coke & Gas Works

Nelson, British Columbia

1051.002

Drawn By: JM

Designed By: JD

Date: 11/28/2018

North Elevation

R302

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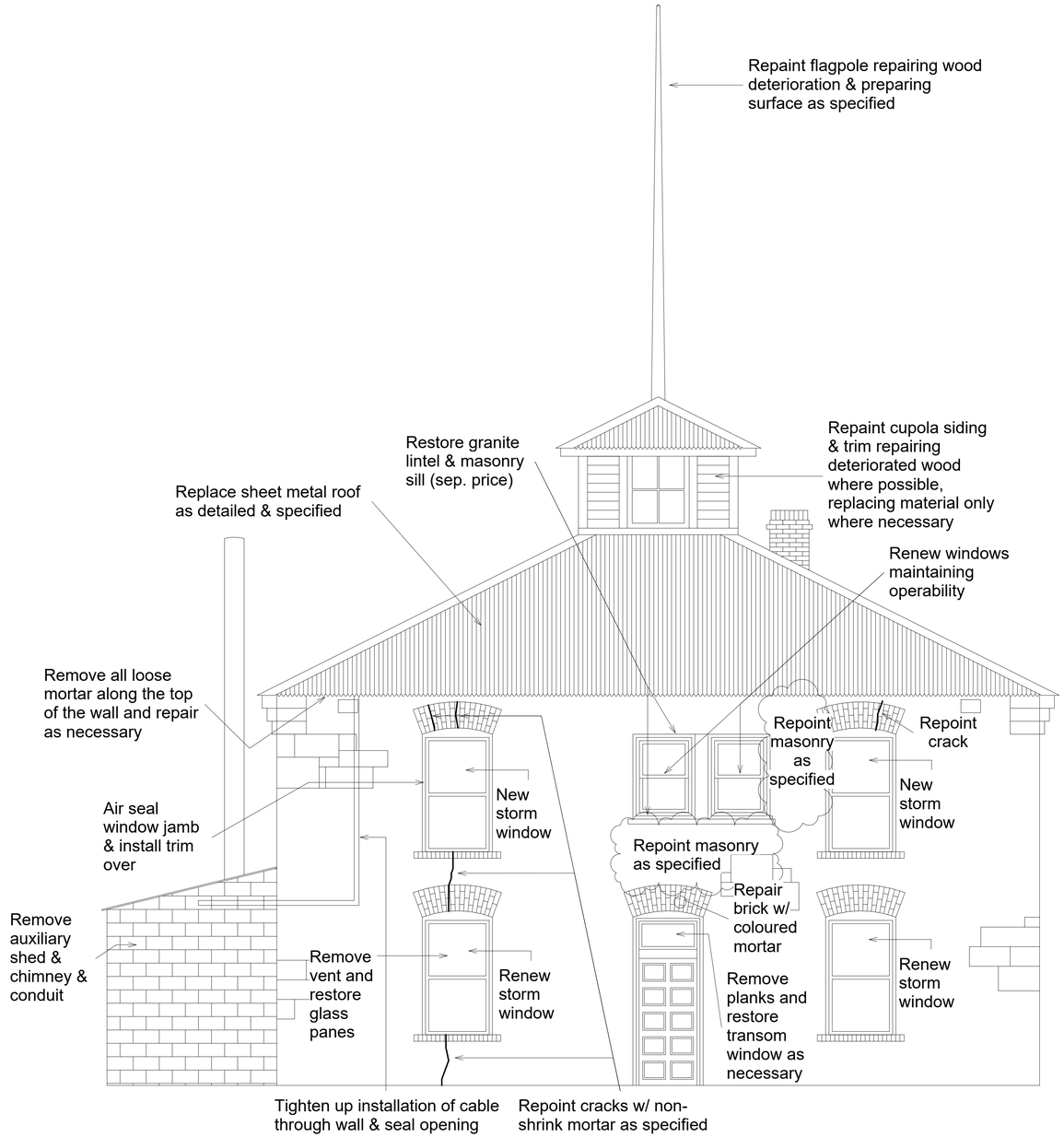

1 South Elevation

Masonry Restoration:

- All elevations to be cleaned as specified
- Clay brick masonry and mortar joints to be painted as specified
- Granite mortar joints to be repointed where shown and as specified
- Masonry repairs to be completed as shown
- Repoint chimney cap
- Remove all unnecessary metal & wood inserts

Window/Door Restoration:

- Remove all interior window films & associated molding
- Replace all damaged, altered, and missing glass panes
- Restore windows that are noted as such
- Restore both north & south doors
- Restore storm windows having horizontal muntin bars. Fabricate new storm windows as necessary and as specified for those windows w/o renewable storm windows.
- Repair all window sills as specified & detailed
- Clean and paint all existing window frames insitu and as specified, completing all necessary wood repairs

Exterior Stairs:

- Renew base steps as required, reinstating missing tread
- Replace shingles w/ new, using existing fish scale profile. Extend 50 beyond canopy frame e.w.
- Reinforce upper landing guardrails as detailed
- Rebuild upper 'bridge' as detailed
- Repaint stair framing, replacing deteriorated wood frame members where necessary

No.	Revision	Date	By
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Coke & Gas Works

Nelson, British Columbia

1051.002

Drawn By: JM

Designed By: JD

Date: 11/28/2018

South Elevation

R303

John Dam & Associates
Building Conservation Engineering

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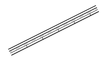
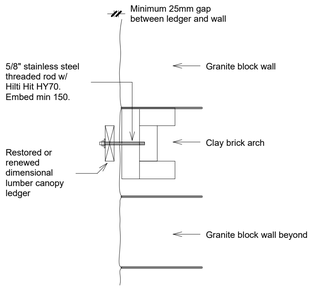


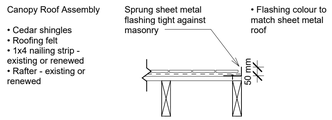
• New sheet metal roof to match existing profile & original colour
• 30lb roofing felt
• Existing roof structure

1 Sheet metal roof assembly

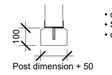


• Maximum anchor spacing 600
• Minimum two anchors per member

2 Canopy to wall connection

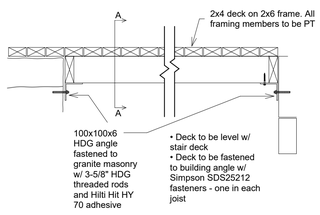


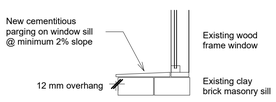
3 Canopy to wall flashing



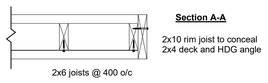
• canopy post - existing or renewed
• Simpson RCPSxxHDGPC post base
• concrete curb w/ chamfered edges

4 Canopy post footing

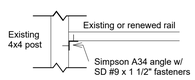




5 Window sill



6 Stair to building deck



• All top & bottom rails to be reinforced with A34 connectors @ each end
• All rails to be renewed as necessary
• All pickets to be fastened top & bottom w/ SD #9 x 3" fasteners into pre-drilled holes

7 Guardrail reinforcement

No.	Revision	Date	By
1	Issued for Client Review	07/02/2018	JM
2	Issued for Quotation	11/28/2018	JM

Coke & Gas Works

Nelson, British Columbia

1051.002

Drawn By: JM

Designed By: JD

Date: 11/28/2018

Details

R400

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Building Conservation Engineering

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Part 1 General

1.1 RELATED SECTIONS

Section 04 03 08 - Historic - Mortar

1.2 REFERENCES

References are to be the latest edition

CSA A23.1/A23.2, Construction Materials and Methods of Concrete Construction.

CSA A371, Masonry Construction for Buildings.

1.3 SUBMITTALS

.1 Submit labelled samples of materials used on project for approval before work commences.

.2 Submit one of each type of restoration mortar - approved samples shall become project standard material

.3 Submit all manufacturer's installation instructions

1.4 QUALIFICATIONS

.1 Contractor-Mason:

.1 The principal mason and site superintendent engaged by the masonry contractor must have a minimum of ten (10) years' experience with historic masonry similar to this project. These individuals must be identified with the proposal submission and prior to signing of Contract. The Consultant has the right to request that either of these individuals be replaced by the Contractor if their qualifications cannot be substantiated. The Consultant has the right to reject any mason who does not demonstrate the appropriate abilities or experience on the following tasks:

.1 Raking joints by hand.
.2 Restoration mortar repairs
.3 Historical repointing.

.2 Contractor-mason shall have a good level of understanding of structural behaviour of masonry walls if masonry work involves replacing or repairing stones which are part of structural masonry work.

.3 One experienced, reliable and competent worker shall be in charge of all mortar mixing for the duration of the project.

.4 All masons employed on this project must demonstrate the ability to reproduce the mock up standards.

.5 All masons employed on this project must meet the above requirements. Where, during the course of the project, masons leave the work force, any replacement masons must also meet requirements

1.5 MOCK-UPS

.1 Construct mock-up 0.5 m x 0.5 m to demonstrate raking out and repointing procedures for each of the following:

.1 Use of power tools (where permitted) to assist with the removal of existing mortar

.2 Raking out of mortar joints

.3 Repointing of joints

.2 Construct mock-up under supervision of Owner to demonstrate a full understanding of specified procedures, techniques and formulations are achieved before work commences.

.3 Construct mock-up where directed.

.4 Allow 24 hours for inspection of mock-up by Owner before proceeding with masonry repointing and repair work.

.5 When accepted, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of finished work.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Store cementitious materials and aggregates in accordance with CSA A23.1.

.2 Store lime putty in plastic lined sealed drums.

.3 Keep material dry. Protect from weather, freezing and contamination.

.4 Ensure that manufacturer's labels and seals are intact upon delivery.

.5 Remove rejected or contaminated material from site and dispose of in a manner that is approved by the local authorities.

1.7 STORAGE AND PROTECTION

.1 At end of each working day, cover unprotected work with waterproof membranes. Membranes should extend to 0.5 m over surface area of work and be tightly installed to prevent finished work from drying out too rapidly.

.2 Protect adjacent finished work against damage which may be caused by on-going work.

.3 All methods of enclosure and protection shall be to the approval of the Owner.

.4 Newly laid mortar shall be protected from excessive exposure to rain and full sunlight until the surface is thumb-print hardened.

.5 Provide and maintain protection for masonry walls at all times when work is suspended to prevent water from entering partially repointed masonry.

.6 Protection shall consist of non-staining 6 mil polyethylene sheets, tarpaulins or burlap, secured to prevent lifting in high winds.

.7 Provide protection boards to exposed corners and all openings such as doors and windows which may be damaged by construction activities. Maintain protection for the duration of operations. Remove and dispose of protective materials as directed by the Owner.

1.8 EXISTING CONDITIONS

.1 Report in writing, to Owner, areas of deteriorated masonry revealed during work. Obtain Consultant's approval and instructions of repair and replacement of masonry units before proceeding with repair work.

1.9 ENVIRONMENTAL REQUIREMENTS

.1 When temperature is 5^{o}C or less:

.1 Store cements and sands for immediate use within heated enclosure provided by the Owner. Allow these materials to reach minimum temperature of 5°C (that is equilibrium with air temperature in enclosure).

.2 Heat water to minimum of 20°C and maximum of 30°C:

.1 At time of use temperature of mortar to be minimum of 15°C and maximum of 30°C.

.2 Do not mix cement/lime with water or with aggregate or with water-aggregate mixtures having higher temperature than 30°C.

.2 Obtain approval from Owner for methods of enclosure and protection.

Part 2 Products

2.1 MATERIALS

.1 Mortar materials: to Section 04 03 08 - Historic - Mortar.

2.2 PROPORTIONS

.1 Proportions: to Section 04 03 08 - Historic - Mortar.

2.3 MORTAR

.1 Mortar: to Section 04 03 08 - Historic - Mortar.

Part 3 Execution

3.1 GENERAL

.1 Perform work in accordance with CSA-A371.

.2 Use manual raking tool, unless otherwise directed, to remove deteriorated and cementitious mortar and ensure that no masonry units are chipped/altered/damaged by work to remove mortar. Tools for cutting out the mortar must be narrower than the joint.

.3 Any power tool used to cut a slot in the existing mortar prior to hand removal shall be equipped with a dustless attachment. The operator of any such tool is to wear a half-mask respirator and full coveralls during any works with the tool.

.4 Tool and compact using jointing tool to force mortar into joint.

.5 Finish joints to match existing original joints, except where specified otherwise.

.6 Use suitable approved jointing tool to form compacted tooled joints.

3.2 REPOINTING

.1 Raking joints:

.1 Rake all joints free of deteriorated, loose, and cementitious mortar, dirt and other undesirable material.

.2 Clean joints to full depth of deteriorated mortar but in no case to less than 2x joint width. Clean out all voids and cavities encountered.

.3 All cutting out of joints is to be done with hammer and chisel, unless otherwise specified. Great care must be taken so as not to damage masonry units adjacent to

joints. Cut away from the arrises to prevent spalling the masonry. The use of power tools is only permitted, as noted.

.4 Where the use of power tools is permitted to remove existing mortar, proceed as follows:

.1 Grind the centre of the joint only, to a maximum width of half of the joint width. Mortar must remain on each side of the cut. The grinders must not touch the stone.

.2 The contractor must notify the Consultant to inspect the grinding, prior to removing the remaining mortar with hand tools.

.3 The remaining mortar must be removed by hand tools.

.5 Permission to use power tools will be based on the Contractor's ability to comply with the above conditions, in the mock-up.

.6 If the contractor is found not to comply with these requirements, he will be required to remove all mortar by using hand tools, at no extra cost to the Owner.

.5 Include removal of all existing excess mortar that may have been applied to stone due to overpointing. Do not damage arris or finish on face of masonry unit.

.6 Clean joints to full depth of deteriorated mortar but in no case to less than 2x joint width. Clean out voids and cavities encountered.

.7 Clean by compressed air, surfaces of joints without damaging texture of exposed joints.

.8 Flush open joints and voids; clean open joints and voids with low pressure water and if not free draining, blow clean with compressed air.

.9 Fine joints (less than 4mm) need not be raked out more than 10mm, in order to reduce the danger of chipping the masonry edges. Use flat-bladed quirks and light hammers, hack-saw blades or similar tools to rake out joints. Do not sawcut the stone.

.10 Leave no standing water.

.11 Damaged masonry includes widening of existing joints, nicks, gouges and chipped or scratched surfaces from cutting out tools, resulting from improper workmanship. Any masonry damaged as a result of careless raking, or saw cutting,shall be replaced at no cost to the Owner.

.12 If masonry unseats or bond is broken, remove unit and reset.

.2 Repointing:

.1 Before repointing, wash masonry surface to be repointed and allow it to dry to damp-dry condition. Ensure that all dust, mortar particles and other debris is removed from joints and wall surfaces before repointing.

.2 Dampen joints and completely fill with mortar. If surface of masonry units/ stone has worn rounded edges keep pointing back from surface to keep same width of joint. Avoid feather edges. Pack mortar solidly into voids and joints.

.3 Keep masonry damp while pointing is being performed.

.4 Do no pointing in freezing weather.

.5 Build-up pointing in layers not exceeding 20mm in depth. Allow bottom layers to become thumbprint hard before applying subsequent layers. Maintain joint width.

.6 Remove excess mortar from masonry face before it sets. Finish jointing neatly as specified.

.7 Allow mortar to set so that there is no free water that will cause run off on stone faces, then tool to match approved mock-up joints. Do not overwork the face of the joints. Joints shall be uniform in appearance. Do not brush joints until they have set to the extent that brushing will not mark the joint surface.

.8 When mortar is thumbprint hard, finish joints with stippling action using a shortbristle brush to compact the joint further, and produce a textured finish, exposing the aggregate.

.9 Retempering of Mortar: Portland cement-hydrated lime mortars should only be retempered once, and should be used within 2 hours of adding water to the mix when the air temperature is less than 25^{o}C (1½ hours for higher temperatures).

.3 Window Sill Repairs:

.1 All deteriorated, existing window sill parging to be removed with hand tools.

.2 All clay brick sills to be washed of debris prior to the placement of new material.

.3 New parging material to be placed with a minimum slope of 2%.

.4 Curing:

.1 Moist cure freshly pointed joints and parging by covering with moist burlap enclosure and polyethylene sheeting, for minimum of 3 days after placement. Keep burlap misted.

.5 Protection:

.1 Protect newly laid mortar from frost, rainfall or rapid drying conditions for 7 days.

3.3 CLEANING

.1 Clean surfaces of mortar droppings, stains and other blemishes resulting from work of this contract as work progresses and at the end of each working day.

.2 Do further cleaning after mortar has set and cured.

.3 Clean masonry with stiff natural bristle brushes and plain water only. Vinegar or chemicals are not to be used unless instructed in writing by Consultant.

3.4 FIELD QUALITY CONTROL

.1 The Owner will inspect the quality of the work on a regular basis.

.2 Notify Owner prior to saw cutting joints so that he can photograph the masonry. Provide clear access to all points of masonry to permit this photography to occur.

.3 Provide the Owner with a minimum of 24 hour notice for required inspections.

.4 Approval of raked out condition of joints, and approval of repointing mortar, must be received in writing by the contractor before the next procedure can proceed.

.5 Where work proceeds to the next phase, without the approval of the Owner, the Contractor will remove all unapproved mortar at his cost.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

Section 04 03 07 - Historic – Masonry Repointing.

1.2 REFERENCES

References are to be the latest edition

ASTM C5, Specification for Quicklime for Structural Purposes.

ASTM C144, Specification for Aggregate for Masonry Mortar

ASTM C150, Standard Specification for Portland Cement

ASTM C207 Specification for Hydrated Lime for Masonry

ASTM C270 Mortar for Unit Masonry

ASTM C780 Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry

1.3 ALLOWABLE TOLERANCES

.1 The Consultant reserves the right to reject mortar which falls more than 20% outside of the 56-day compressive strength range required, and to have the Contractor remove it from the wall at no expense to the Owner.

.2 Mortar compression strength must be less than that of the masonry units.

1.4 SUBMITTALS

.1 All submittals to be provided to the Owner for approval prior to the commencement of the work.

.2 Product Data.

- .1 Submit manufacturer's printed product literature, specifications and data sheets
- .2 Submit WHMIS MSDS - Material Safety Data Sheets. Indicate VOC's mortar, grout, parging, colour additives and admixtures.

.3 Samples.

- .1 Submit four 50 mm x 50 mm size samples of mortar.
- .2 Prior to the mixing or preparation of mortars submit for approval to the Consultant confirmation of source or product data sheet of:
  - .1 Aggregate and Sand
  - .2 Cements
  - .3 Lime
  - .4 Manufacturer's Instructions.

1.5 QUALITY ASSURANCE

.1 Test Reports: submit certified test reports to the Owner showing compliance with specified performance characteristics and physical properties. Include the following:

- .1 Sand gradation testing in accordance with ASTM C144.
- .2 Bulking of aggregate sample, in condition as delivered to site.

.2 Certificates: submit manufacturer signed, product certificates to the Owner certifying materials comply with specified performance characteristics and criteria and physical requirements.

.3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.6 EXISTING CONDITIONS

.1 Investigate possible structural problems and report before beginning masonry work.

.2 Study pointing styles and methods of reproducing them, and submit sample for approval before starting work.

.3 Examine aspects of original workmanship which establish authenticity of original work.

1.7 ENVIRONMENTAL REQUIREMENTS

.1 Execute work when ambient temperature is above $5^{o}C$.

.2 Prepare and maintain temperature of mortar between $5^{o}C$ and $30^{o}C$ until used.

1.8 ALTERNATIVES

.1 Obtain Consultants written approval before changing manufacturer's brands or sources of supply of mortar materials during entire contract or other methods of mixing mortar specified elsewhere in this specification.

Part 2 Products

2.1 MATERIALS

.1 Use same brands of materials and source of aggregate for entire project.

.2 Mortar: ASTM C270

.3 Lime: Hydrated lime to ASTM C207.

.4 Portland Cement: ASTM C150, Type I, white, non staining.

.5 Aggregate: Free of impurities and conform to ASTM C144. Use well graded aggregate passing 4.75mm down to 150 micron sieve where joints are greater than 6mm. Use aggregate passing 1.18mm down to 300 micron sieve where 6mm thick joints or less are indicated. In the event that the sand does not meet the noted gradation requirements, the contractor will be required to carry our additional sieving to meet the requirements or provide alternate sand

Colour: ground coloured natural aggregates or metallic oxide pigments. Colour of sand to match existing

When possible, use a well-rounded sand rather than crushed sand for repointing mortar.

.6 Pre-packaged SpecMix Type ‘O’ or Tuckpoint mortar. Mix proportions and methods as specified by the manufacturer.

.7 Water: potable or from approved non potable supply.

.8 Calcium chloride is not to be used for any mortar.

2.2 PROPERTIES

.1 Repointing mortar for stone work:

.1 Type ‘O’ based on proportion specifications. Range for compressive strength; 4 MPa to 7 MPa at 56 days. Use 1:2½:8 cement:lime:aggregate mix. Alternate:

.2 SpecMix Type ‘O’ Tuckpoint mortar, blended and prepared as recommended by Manufacturer.

.3 Approved alternative

.2 Polymer modified mortar for window sill parging

.1 To be suitable for outdoor use being UV stable
.2 To be suitable for use on clay brick masonry
.3 To provide waterproof performance characteristics

.3 Allowable air content for all Lime Mortars; 8% to 14%.

2.3 MIXES

.1 Do not add air entraining admixture to mortar mix

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 MIXING

.1 Prepare measuring boxes to ensure accurate proportioning of mortar ingredients. Each box to contain exact volume proportion for each specific mix ingredient.

.2 Introduce approximately 75% of the total volume of water into the mixer, followed by 50% of the sand and all of the dry hydrated lime. Mix for approximately 3 minutes or until the materials are thoroughly blended and no particles of white lime are apparent in the mix.

.3 Let stand for 10 minutes.

.4 Add the full volume of Portland cement and the remainder of the sand and water. Mix for further 3-5 minutes until thoroughly blended.

.5 Add just sufficient water to obtain workable consistency for setting units. Avoid too wet a mix which stains the face of the work. Record water quantities and use for subsequent mixes to help ensure uniformity of all subsequent mixes.

.6 Adjust mix proportions based on percentage bulking shown in the test.

.7 All pointing mortar can be mixed using a regular paddle mixer. Only electric motor mixers are permissible. Mixers run on hydrocarbons are not permitted, due to fumes.

.8 Mixing by hand must be pre-approved by the Consultant, as follows:

.1 Hand mixing must be carried out using high speed 2500 Rpm drill, with paddle mixer attachment. Mixing to be completed in sufficiently small container so as to allow full contact of the paddle with the mortar during the mixing process, thus ensuring thorough incorporation of ingredients and air entrainment.

.2 Submit masonry tools and container for approval prior to starting pointing work.

.9 Clean all mixing boards and mechanical mixing machine between batches.

.10 Mortar must be weaker than the masonry units which it supports.

.11 Mortar must not contain elements detrimental to the original masonry or surrounding materials.

.12 Appoint one individual to mix mortar, for duration of project. In the event that this individual must be replaced, mortar mixing must cease until the new individual is trained, and mortar mix is tested.

3.3 CLEANING

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

.2 Remove droppings and splashings using clean sponge and water

.3 Clean masonry with low pressure clean water and soft natural bristle brush. Water pressure should be between 40 and 60psi. See Section 04 03 07-Historic: Masonry Repointing and Repair

3.4 PROTECTION OF COMPLETED WORK

.1 Cover completed and partially completed work not enclosed or sheltered with waterproof covering at end of each work day. Anchor securely in position

3.5 FIELD QUALITY CONTROL

.1 Inspection and testing of mortar may be carried out by a Testing Laboratory designated by the Consultant.

.2 Owner will pay for cost of test as specified.

.3 Frequency of mortar testing will be specified by Consultant.

.4 Air content for all lime mortars must be tested at the same frequency as strength tests, or more frequently as required by the Consultant.

.5 Test sand and aggregate for bulking at start of project, at each new sand delivery, and at severe change in weather.

.6 The Consultant reserves the right to reject sand if bulked volumes are excessive.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

Section 07 46 23 – Wood Siding
Section 09 03 61 – Historic – Repainting Exterior Surfaces

1.2 REFERENCES

References are to the latest editions

CSA B111, Wire Nails, Spikes and Staples.

CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

CSA O121, Douglas Fir Plywood.

CAN/CSA-O141, Softwood Lumber.

CSA O151, Canadian Softwood Plywood.

CAN/CSA-O325.0, Construction Sheathing.

National Lumber Grades Authority (NLGA) - Standard Grading Rules for Canadian Lumber.

1.3 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood identification: by grade mark in accordance with applicable CSA standards.

1.4 WASTE MANAGEMENT AND DISPOSAL

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

.2 Collect and separate all material in appropriate on-site bins for recycling and disposal in accordance with a Waste Management Plan.

.3 Unused wood materials to be processed at a recycling facility.

.4 Do not dispose of preservative treated wood through incineration.

.5 Do not dispose of preservative treated wood with materials destined for recycling or reuse.

.6 Dispose of treated wood, end pieces, wood scraps and sawdust at sanitary landfill.

.7 Dispose of unused wood preservative material at official hazardous material collections site approved by Consultant.

.8 Do not dispose of unused preservative material into sewer system, into streams, lakes, onto ground or in other locations where they will pose health or environmental hazard.

.9 All disposal and recycling fees are the responsibility of the Contractor

Part 2 Products

2.1 LUMBER MATERIAL

.1 Lumber: unless specified otherwise, softwood, S4S, moisture content 19% or less in accordance with following standards:

- .1 CAN/CSA-O141.
- .2 NLGA Standard Grading Rules for Canadian Lumber.

.2 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers:

- .1 Board sizes: "Standard" or better grade.
- .2 Dimension sizes: "Standard" light framing or better grade.
- .3 Post and timbers sizes: "Standard" or better grade.

.3 All exterior wood framing materials to be No.1 grade d.Fir.

2.2 PANEL MATERIALS

.1 Douglas fir plywood (DFP): to CSA O121, standard construction.

.2 Canadian softwood plywood (CSP): to CSA O151, standard construction.

2.3 ACCESSORIES

.1 Nails, spikes and staples: to CSA B111.

.2 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.

.3 Proprietary fasteners: lag bolts and screws, recommended for purpose by manufacturer.

2.4 FINISHES

.1 Galvanizing: to CAN/CSA-G164, use hot dipped galvanized fasteners for exterior work.

Part 3 Execution

3.1 PREPARATION

.1 Prime and paint all surfaces prior to installation.

.2 Prime and paint all surfaces exposed by cutting, trimming or boring prior to installation.

.3 Treat material as follows:

- .1 Posts, beams, rafters, fascia backing, curbs, nailers, sleepers on roof deck.

3.2 INSTALLATION

.1 Align and plumb faces of furring and blocking to tolerance of 1:600.

.2 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

.3 Install wood cants, fascia backing, nailers, curbs and other wood supports as required and secure using galvanized, steel fasteners.

3.3 ERECTION

.1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.2 Countersink bolts where necessary to provide clearance for other work.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

Ssection 06 10 11 – Rough Carpentry
Section 07 62 00 - Sheet Metal Flashing and Trim.
Section 09 03 61 – Historic - Repainting Exterior Surfaces.

1.2 REFERENCES

References are to the latest editions

CSA B111, Wire Nails, Spikes and Staples.

CSA O121, Douglas Fir Plywood.

CSA O151, Canadian Softwood Plywood.

National Lumber Grades Authority (NLGA) - NLGA Standard Grading Rules for Canadian Lumber.

1.3 SUBMITTALS

.1 Sample siding replicating the existing original siding to be provided to the Owner for approval prior to the commencement of the work.

1.4 QUALITY ASSURANCE

.1 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.5 WASTE MANAGEMENT AND DISPOSAL

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

.2 Collect and separate all materials in appropriate on-site bins for recycling and disposal in accordance with Waste Management Plan.

.3 Unused wood materials shall go to a recycling facility.

.4 All disposal and recycling fees are the responsibility of the Contractor

Part 2 Products

2.1 MATERIALS

.1 Lumber siding: to NLGA Standard Grading Rules for Canadian Lumber.

.1 New siding to match species, grade, grain, texture, profile and dimension of existing siding.

.2 Exterior wall sheathing paper: to CAN/CGSB-51.32 single ply

.3 Fasteners: nails to CSA B111, hot galvanized steel, sized as required, smooth shank, with flat finishing head.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSTALLATION

.1 Install sheathing paper horizontally, where necessary by stapling and lapping edges 100 mm.

.2 Install sill flashings, wood starter strips, inside corner flashings, edgings and flashings over openings.

.3 Back prime all siding prior to installation.

.4 Fasten wood siding in straight, aligned lengths to sheathing using two nails at each fixing location. Stagger butt joints not less than 800 mm and distribute evenly over wall faces. Cut butt joints at 45 degrees.

.5 Fasten plywood siding so that edges are supported. Maintain 1.5 mm wide gap between sheets. Nail at 300 mm on centre along intermediate supports and 150 mm along edges. Apply battens identical to existing over vertical joints.

3.3 CLEANING

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

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

Section 07 46 23 – Wood Siding

1.2 REFERENCES

References are to the latest editions

ASTM A879/A879M, Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process Requiring Designation of the Coating Mass on Each Surface.

ASTM A606/A606M, Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.

ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

ASTM B32, Standard Specification for Solder Metal.

CSA B111, Wire Nails, Spikes and Staples.

1.3 SAMPLES

.1 Submit to Owner samples of each type of sheet metal material, colour, and finish for review and approval prior to installation.

1.4 WASTE MANAGEMENT AND DISPOSAL

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

.2 Collect and separate for recycling or disposal in accordance with Waste Management Plan.

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

.4 Ensure emptied containers are sealed and stored safely for disposal away from children.

.5 Unused metal materials to be disposed at a metal recycling facility

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

.7 All disposal and recycling fees are the responsibility of the Contractor

Part 2 Products

2.1 SHEET METAL MATERIALS

.1 Zinc coated steel sheet: commercial quality to ASTM A653/A653M, with Z275 designation zinc coating.

2.2 PREFINISHED STEEL SHEET

.1 Prefinished steel with factory applied silicone modified polyester.

.1 Paint and primer to be back cured. Include paint system coating to reverse side of coil stock to prevent corrosion of backside surfaces and uniform colour.

.2 Coating thickness: not less than 25 micrometres.

2.3 ACCESSORIES

.1 Isolation coating: alkali resistant bituminous paint.

.2 Plastic cement: to CAN/CGSB 37.5.

.3 Cleats: of same material, and temper as sheet metal, minimum 50 mm wide. Thickness same as sheet metal being secured.

.4 Fasteners: of same material as sheet metal, to CSA B111, ring thread, flat head roofing nails of length and thickness suitable for metal flashing application.

.5 Washers: of same material as sheet metal, 1 mm thick with rubber packings.

.6 Solder: to ASTM B32.

.7 Flux: commercial preparation suitable for materials to be soldered.

.8 Touch-up paint: as recommended by prefinished material manufacturer.

2.4 FABRICATION

.1 Fabricate metal flashings and other sheet metal work in accordance with applicable RCABC details and specifications.

.2 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.

.3 Use flat-lock folded seams for all joints and splices of thru-cavity flashings. Contractor may use S-lock joints if all surfaces of flashing are sloped greater than 3:1.

.4 Hem exposed edges on underside 12 mm. Mitre and seal corners with sealant.

.5 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

2.5 METAL FLASHINGS

.1 Form flashings, copings and fascias to profiles indicated and as required to compliment and finish membrane-roofing and wall systems.

Part 3 Execution

3.1 INSTALLATION

.1 Install sheet metal work in accordance with applicable RCABC specifications and standards.

.2 Use concealed fastenings except where approved before installation.

.3 Provide underlay under sheet metal. Secure in place and lap joints 100 mm.

.4 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs. Flash joints using S-lock forming tight fit over hook strips.

.5 Lock end joints and caulk with sealant.

3.2 TOUCH-UP AND CLEAN-UP

.1 The Contractor to remove dirt and staining from flashing materials by dry wiping as the material is erected.

.2 Remove all excess solder and sealants with recommended solvent.

.3 Wipe off all hand prints, smudges, and other superficial stains.

.4 Remove and replace all dented and damaged materials.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 09 03 61 – Historic – Repainting Exterior Surfaces

1.2 REFERENCES

References are to be latest edition

ASTM D1761, Standard Test Methods for Mechanical Fasteners in Wood.

ASTM F1667, Specification for Driven Fasteners: Nails, Spikes and Staples.

CAN/CSA O141, Softwood Lumber

CSA-O112 Series, Standard for Wood Adhesives.

Master Painters Institute (MPI)

Millwork Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC).

National Lumber Grades Authority (NLGA) - Standard Grading Rules for Canadian Lumber 2014.

1.3 SUBMITTALS

.1 Submit samples and/or mock-ups for review and approval by Owner for each type of repair on each new element of work prior to the commencement of the work.

1.4 FIELD RECORDING

.1 For window units, doors, storm windows, or sections of trim being removed for repairs; record location and orientation before removal. Return all repaired elements to original locations to ensure proper fit.

1.5 QUALIFICATIONS

.1 Work under this Section to be done by skilled craftsmen having a minimum 10 years of experience in the conservation and restoration of historic wood detailing to windows, doors and trim. These individuals must be identified in the proposal submission.

.2 Submit with proposal, details of the firm carrying out this work including details of relevant training and experience. Provide evidence of work on three previous projects, similar in size and scope, with reference for each project.

1.6 PRODUCT DATA

.1 Prior to the commencement of work on the wood frame window, product data sheets for replacement wood, adhesives, glazing and weatherstripping to be submitted to the Owner for review and approval. These sheets are to include:
- .1 Product characteristics.
- .2 Performance criteria.
- .3 Limitations.

1.7 PROTECTION & STORAGE

.1 Provide temporary wrapping and bracing as necessary to protect components from weather and damage during shipment, storage and handling.

.2 Store components in designated areas inside building or in repair workshop.

Part 2 Products

2.1 MATERIALS

.1 Material matching existing to be used for all repair and replacement to exterior woodwork.

.2 Softwood lumber: unless specified otherwise, AWMAC Custom Grade, Selected Class, S4S, moisture content 10% or less, to CSA O141and NLGA Standard Grading Rules for Canadian Lumber.

.3 Nails and staples: to ASTM F1667.

.4 Wood screws: to ASTM D1761.

.5 Epoxy consolidant: Acceptable Material: ConServ Flexible Epoxy Consolidant 100.

.6 Wood Filler: Sculpwood Putty or Sculpwood Paste

.7 Adhesives: phenol and resorcinal resin adhesives for wood, to CSA O112-Series, Class II Type I Standards for Wood Adhesives.

.8 Adjustable sash stop hardware: To match existing.

.9 New weather stripping:
- .1 Window Seal – Kerf Bulb Weather Strip 5/16” code # WS34Brown
- .2 Door Seal – Door Seal #922
- .3 Door Shoe – Pemko 2343_V.
- .4 To be installed on all windows and doors where necessary. Required along jambs and head of fixed frame and sill of operable.

Part 3 Execution

3.1 WOOD REPAIRS

.1 Wood Repairs: (windows, doors and trim)

.1 For minor cracks and crevices less than 5 mm in width, fill with glazing compound (putty) applied after the wood has been treated as described above.

.2 For cracked and decayed areas where wood dutchman repairs are not to be used, cut out damaged sections ready for treatment with the specified consolidation system. Install in accordance with the manufacturer's recommended procedures.

.3 Finish hardened material to match the original planes, section, profile and finish of adjacent material.

.4 Clean slot to receive weather stripping to ensure a complete and tight seal at interior.

.2 Dutchman Repair (Spliced wood repairs)

.1 Material spliced in as a repair shall be of matching wood species with direction and orientation of the grain to match the adjacent existing work.

.2 Joints shall be tight and indistinguishable from adjacent material.

.3 Material shall be spliced to parent piece and not adjacent element.

.4 All splices shall be weathertight and connected by gluing and clamping with additional concealed non-corrosive fasteners other than nails, concealed dowelling, splines and tenonning joinery as required and as approved by Consultant.

3.2 STORM/SASH/DOOR RENEWAL

.1 Renew and replicate storm window assemblies as identified on the drawings.

.2 All renewed hung sash and storm window frames to have wood surfaces prepared and painted as specified in Section 09 03 61.

.3 Renew all operable hardware were necessary repairing those pieces that can be repaired and replacing those piece that cannot. New hardware elements to match existing hardware elements.

.4 All new materials, assemblies, and details are to match original, existing materials, assemblies, and details and be approved by the Client.

.5 Wash interior and exterior of windows/doors at completion of project.

3.3 CLEAN-UP

.1 On completion of work, clean adjacent surfaces immediately and leave area neat and clean.

END OF SECTION

Part 1 General

1.1 RELATED WORK

Section 06 10 11 - Rough Carpentry
Section 07 46 23 - Wood Siding
Section 08 01 52 – Historic – Wood Windows & Doors

1.2 REFERENCES

References are to the latest editions

CGSB 1-GP-2M Oil, Linseed, Boiled.

CGSB 1-GP-16M Shellac Varnish.

CGSB 1-GP-28M Paint, Exterior, Alkyd, House.

CGSB 1-GP-55M Primer, Wood Exterior.

CGSB 1-GP-138M Paint, Exterior, Latex Type, Flat.

CGSB 1-GP-189M Primer, Alkyd, Wood, Exterior.

MPI Architectural Painting Specifications Manual for previously painted or finished substrates.

1.3 SOURCE QUALITY CONTROL

.1 Retain purchase orders, invoices and other documents to prove that material used in contract meets requirements of specification and produce when requested by Owner.

1.4 SUBMITTALS

.1 All submittals to be provided to the Owner for approval prior to the commencement of the work.

.2 Submit full records of all products used. List each product in relation to finish formula and include the following:

- .1 Finish formula designation
- .2 Product type and use
- .3 MPI number
- .4 Manufacturer’s product number
- .5 Colour numbers
- .6 Manufacturer’s MSDS sheets
- .7 Maximum VOC classification

.3 Submit manufacturers application instruction for each product specified.

.4 Submit duplicate sample panels for each paint formula type colour and texture specified.

.5 At project completion submit one 4-litre can of each type and colour of primer and finish coating from same production run used in unopened cans, properly labelled and identified for Owner’s later use in maintenance. Store where directed. Remnants of used material are not acceptable.

1.5 DELIVERY AND STORAGE

.1 Deliver and store materials in manufacturer’s original container with labels intact.

.2 Ensure dry delivery and storage of materials and equipment at site.

.3 Store materials and equipment in a well ventilated place with temperature range 15 to 25^{o} C and away from heat generating devices.

.4 Remove damaged, opened and rejected materials from site.

1.6 EXISTING CONDITIONS

.1 Report to Owner conditions of deteriorated materials found during preparation, not previously disclosed.

.2 Apply paint only when surface to be painted is dry, clean, properly cured and adequately prepared as specified.

.3 Maximum moisture content of wood to be 12%

1.7 ENVIRONMENTAL REQUIREMENTS

.1 Air temperature during application shall be between 14^{o}C and 29^{o}C with a relative humidity less than 80%.

.2 Do not apply coatings under high wind conditions resulting in wind blown dust and debris.

1.8 PROTECTION

.1 Protect paint and painting equipment before use and during length of contract from climatic elements.

.2 Protect exterior of structure from markings and other damage. Protect completed work from paint droppings. Use non-staining coverings.

.3 Provide for protection of passing pedestrians and the general public.

1.9 SCHEDULING OF WORK

.1 Submit work schedule starting and final completion dates for approval by Owner.

.2 Take measures necessary to complete work within approved scheduled time. Change in schedule must be approved by Consultant.

.3 Co-ordinate execution with other work at site.

1.10 ALTERNATIVES

.1 Request for alternative approval must be submitted in writing and be accompanied by full literature and recommendations from manufacturers concerned.

1.11 WARRANTY

.1 Painted surfaces are to be warranted to not peel, crack, bubble, or stain adjacent surfaces for a period of 24 months.

Part 2 Products

2.1 MATERIALS

.1 Paint materials for paint systems to be products of a single manufacturer and shall be in accordance with the MPI “Approve Product” listing.

.2 Approved manufacturers: Pratt & Lambert
Dulux
Sherwin Williams

.3 Primer coat to be oil based

.4 Paint to be 100% acrylic resin with minimum 42% solids by volume

.5 Sheen: Siding – Satin
Trim – Semi-Gloss

.6 Approved alternative - Linseed oil based paint

.7 Contractor to submit a complete list of materials to be used on this project to Owner for approval prior to submission of sample colour cards.

2.2 TOOLS AND EQUIPMENT

.1 Consultant to approve areas where power tools or equipment may be used for both preparing and painting of substrate.

2.3 MIXING PAINT

.1 Paint to be ready for application by brush or roller when received.

.2 Mix paint in full containers up to 5 litres capacity by vibrator shaker method.

.3 Mix paint in full containers up to 25 litres by propeller mixer method.

.4 Do not mix or keep paint in suspension by means of an air stream under paint surface.

2.4 COLOUR SCHEDULE

.1 A colour schedule will be supplied by the Owner following award of contract.

2.5 SAMPLES

.1 Upon receipt of the colour schedule, Contractor shall prepare a sample of each colour of paint and finish on 8½ x 11 card stock. Once approved, one sample is to be delivered to the Owner and one sample is to be kept on site.

.2 Following approval of card stock sample, building samples are to be prepared for approval. Samples are to include one full window trim and 1 m^2 of siding on both the north and south elevations.

.3 General painting of the siding and trim is not to proceed until building samples are approved.

Part 3 Execution

3.1 PREPARATION FOR TASKS

.1 Ensure that workers are informed of safety rules.

.2 Ensure that safety measures have been taken each day before any job is started.

.3 Verify that equipment meets safety standards.

.4 Encourage workers to report hazards in their work.

.5 Place safety devices and signs near work area as indicated or directed.

3.2 SURFACE PREPARATION

.1 Prepare existing surfaces in accordance with the MPI Maintenance Repainting Manual. Refer to the Repainting and Refinishing Schedule for specified surface preparation based on Degree of Surface Deterioration.

.2 Clean wood surfaces exposed to maritime atmosphere:

- .1 Scrub area with diluted detergent solution and clean warm water using a stiff bristle brush to remove salt, dirt and oil.
- .2 Hose down scrubbed area with clean water until foreign matter is flushed from surface.
- .3 Allow washed area to drain completely and allow to dry thoroughly.

.3 Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

.4 Prime all surfaces prior to base and final coat paint application. All raised grain and lifting paint beneath primed surfaces to be sanded

.5 Minimum surface preparation shall be to clean soiled surfaces, sand smooth and dust. Fill nail holes, splits, scratches, small joints and other minor imperfections with patching compound after paint prime coat has been applied and dried.

3.3 PAINT APPLICATION

.1 Perform painting in accordance with the MPI Maintenance Repainting Manual for existing surfaces.

.2 Method of application to be brush and roller and uniform coats of specified film thickness to be in agreement with painting contractor, paint supplier and Consultant.

.3 Method of paint application shall be sufficient to fill all voids in existing surfaces and provide uniform appearance.

.4 Apply primer and minimum two coats of approved paint to exposed surface.

.5 Apply each coat of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied. Edges of paint adjoining other materials shall be clean and sharp with no overlapping.

.6 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.7 Sand and dust between each coat to remove visible defects.

3.4 BACK-PRIMING OF EXTERIOR WOOD

.1 Back prime concealed surfaces of wood fascia and all other components with one or two more surfaces exposed to the exterior and one or more surfaces concealed after installation.

.2 Use exterior alkyd primer for components scheduled to receive a paint finish.

3.5 WORKMENSHIP

.1 All painting work to be carried out by qualified personnel with minimum 5 years' experience in painting wood cladding and trim.

3.6 FIELD QUALITY CONTROL

.1 All surfaces, preparation and paint applications shall be reviewed by Owner

.2 Paint thickness may be verified following the application of each coat and approved as acceptable by Owner prior to proceeding on to the next coat.

.3 Repainted exterior surfaces shall be considered to lack uniformity and soundness if any of the following defects are apparent to the Owner:

- .1 Runs, sags, hiding or shadowing by inefficient application methods
- .2 Evidence of poor coverage
- .3 Damage due to touch before paint is sufficiently dry
- .4 Damage due to application on moist surfaces or caused by inadequate protection from the weather
- .5 Damage and/or contamination of paint due to wind blown contaminants

.4 Painted surfaces rejected by the Owner shall be made good at the expense of the Contractor.

3.7 CLEANING

.1 Avoid paint splashings on exposed surfaces not to be painted. Smears and spatter be removed immediately, using compatible solvent.

.2 Avoid scuffing newly applied paint.

.3 Clean and re-install all items that were removed before undertaking painting operations.

.4 Repair, touch-up and refinish damaged work caused by painting operations.

3.8 PROTECTION OF COMPLETED WORK

.1 Protect area where paint has been applied.

.2 On completion of specified work remove surplus materials, tools and equipment and debris on work area; leave clean and tidy to complete satisfaction of Owner.

END OF SECTION

Appendix 2

steer environmental
associates ltd.

SEA Project #0561

August 31, 2018

Peter Sinstadt
Facilities Maintenance Manager
City of Nelson
80 Lakeside Drive
Nelson, BC V1L 5S4

Attention: Mr. Sinstadt

RE: Supplemental HazMat Assessment for 610 Railway Street in Nelson, BC

This letter report outlines the methodology, results, conclusions, and recommendations of a supplemental hazardous material (HazMat) assessment completed by Steer Environmental Associates Ltd. (SEA) on behalf of the City of Nelson (Nelson) prior to renovation works at 610 Railway Street in Nelson, BC (the Building).

SEA was retained by Nelson to conduct a supplemental HazMat assessment at the Building after a previous HazMat survey was completed by Pinchin West Inc. (Pinchin) in 2016. The supplemental HazMat assessment was conducted in accordance with WorkSafeBC Occupational Health and Safety Regulation (OSHR) Parts 6 and 20, OHS Guidelines Part 6, and *Safe Work Practices for Handling Asbestos*[1] and *Safe Work Practices for Handling Lead*[2]. The study has been requested for health, safety, and environmental due diligence (under OHSR, different actions trigger the assessment, in this case it was the proposed renovation works).

The objectives of the assessment were to identify, sample, characterize, and quantify potential HazMat within the proposed renovation areas of the Building, as well as to provide recommendations for abatement or risk management of confirmed HazMat.

The Building is suspected of construction prior to regulation of hazardous materials in Canada and the USA. At the time of the survey the Building was occupied.

APPLICABLE REGULATIONS

Provincial Occupational Health and Safety Regulations

Workplace health and safety is regulated in British Columbia by WorkSafeBC under the *Workers' Compensation Act* (effective April 15, 1998), as amended by the *Workers' Compensation (Occupational Health and Safety) Amendment Act* (effective October 1, 1999, the Act). The Act defines the general duties and obligations of the employer, employees and others at the work site.

[1] WorkSafeBC, 2017. *Safe Work Practices for Handling Asbestos*. Workers' Compensation Board of BC Publication
[2] WorkSafeBC, 2017. *Safe Work Practices for Handling Lead*. Workers' Compensation Board of BC Publication

Asbestos

Specific actions and work practices for asbestos management are outlined in the WorkSafeBC OHSR Parts 6 and 20, OHS Guidelines Part 6, and *Safe Work Practices for Handling Asbestos*. The OHSR contains legal requirements that must be met by all workplaces under the inspection jurisdiction of WorkSafeBC. Asbestos is governed by Part 6 - Substance Specific Requirements, specifically Section 6.1 through 6.32, and Part 20 - Construction, Excavation and Demolition, specifically Section 20.112 Hazardous materials.

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

The OHSR defines ACM as any manufactured article or other material, other than vermiculite insulation, determined to contain at least 0.5% asbestos when tested in accordance with the approved laboratory methods. Section 6.1 of the WorkSafeBC OHSR indicates that vermiculite insulation shown to contain *any* detectable level (>0%) of asbestos is considered an ACM.

Lead-Based Paint and Coatings

Specific actions and work practices for lead management are outlined in the WorkSafeBC OHSR Parts 6 and 20, OHS Guidelines Part 6, and *Safe Work Practices for Handling Lead*. The OHSR contains legal requirements that must be met by all workplaces under the inspection jurisdiction of WorkSafeBC. Lead is governed by Part 6 - Substance Specific Requirements, specifically Section 6.58.1 through 6.69, and Part 20 - Construction, Excavation and Demolition, specifically Section 20.112 Hazardous materials.

WorkSafeBC has published *Safe Work Practices for Handling Lead*. This manual outlines basic information on lead, lead products, and lead-containing paints and coatings, health hazard requirements for worker protection, to assist employer development of safe work procedures to prevent lead exposure. This document provides a guide to current practices which are to be followed in the Province of British Columbia, and references the State of California's Division of Occupational Safety and Health (Cal/OHSA) guideline for lead-containing surface coatings subject to improper removal of 600 mg/kg, that can present an exposure risk to workers. This guideline is protective of occupational receptors and was thus applied in the pre-restoration HazMat assessment. WorkSafeBC also references the Health Canada guideline for lead-containing paint or surface coating materials of 90 mg/kg total lead. This guideline is protective of sensitive receptors such as pregnant women and/or children and was also applied in the pre-restoration HazMat assessment based on the assumption that sensitive receptors will be present at the Building during and/or after restorations.

Environmental Regulations

In British Columbia, environmental matters pertaining to production and disposal of waste generally fall under the jurisdiction of the Ministry of Environment and Climate Change Strategy (ENV), pursuant to the *Environmental Management Act* (EMA). The waste regulation under the EMA relating to hazardous building materials is the Hazardous Waste Regulation (HWR), BC Regulation 63/88. The Hazardous Waste Regulation BC Reg. 63/88, OC 268/88, including amendments up to BC Reg. 179/2016, outlines the requirements for the storage, transportation, treatment, recycling and disposal of hazardous wastes in BC. The regulation outlines the materials and criteria to be used to characterize waste as hazardous.

Regional District of Central Kootenay (RDCK) disposal requirements for building materials containing lead-based paints and/or coatings stipulate that coatings proven to contain lead concentrations greater than 100 mg/kg must be subject to leachable lead characterization via toxicity characteristic leaching procedure (TCLP) to determine whether regulated hazardous material disposal requirements apply to the material. Paint and/or coatings exceeding the HWR leachate quality standard for lead (5 mg/L) are considered to be regulated hazardous materials and must be disposed of accordingly.

Transportation of Hazardous or Regulated Waste

The transportation of hazardous wastes is governed under the Federal *Transportation of Dangerous Goods Act* and Regulations.

SURVEY METHODOLOGY

Asbestos

Intrusive sampling of potential asbestos-containing materials (PACM) at the Building on August 17th, 2018, in accordance with WorkSafeBC OHSR Part 6, OHS Guidelines Part 6, and *Safe Work Practices for Handling Asbestos*. Disturbance and destruction of PACM was minimized during sampling events to prevent release of PACM to the indoor environment. Surfaces requiring intrusive sampling were wetted prior to obtaining samples to reduce suspension of potentially friable ACM in indoor air. Minimum sample volumes of PACM were collected in WhirlPak™ or Ziploc™ bags, labelled, and shipped to Caro Analytical Services of Kelowna, BC, for laboratory analysis of asbestos via Polarized Light Microscopy (PLM, method EPA/600/R-93/116). Caro is accredited by the Canadian Association for Laboratory Accreditation (CALA) for asbestos analysis in bulk materials.

A total of 6 bulk samples of PACM were collected throughout the planned renovation areas within the Building. All 6 samples collected during the survey were selected for laboratory analysis of asbestos.

Lead-Based Paint and Coatings

Seven (7) leachability characterization samples were collected from surfaces that were confirmed by Pinchin of containing lead at concentrations triggering such characterization. Samples were collected in accordance with WorkSafeBC requirements as outlined in *Safe Work Practices for Handling Lead*. Samples were collected into Ziplock™ bags, labelled, and submitted for lead analysis to Caro in Richmond, BC. Samples were subjected to analysis of lead content in bulk material via Hot Block Digestion/Inductively Coupled Plasma-Mass Spectroscopy (ICPMS) (EPA 1311, EPA 200.2/EPA 6020B[3]). Caro is accredited by the CALA for lead analysis in bulk materials.

[3] USEPA. 1996. Method 6020B – Acid Digestion with Inductively Coupled Plasma-Mass Spectroscopy

ASSESSMENT RESULTS

Asbestos

Table 1 summarizes sample details and analytical results for asbestos content. Floor plan and sample locations are presented in Attachment 1. Laboratory results are presented in Attachment 2.

Table 1 Sampling Details and Asbestos Content of Potential Asbestos-Containing Materials

Sample ID	Sample Location/ Building Material Collected	Analysis Requested	Asbestos Content
WP1	Second floor west window/ Window putty	PLM	None
WP2	Second floor south window/ Window putty	PLM	None
WP3	Second floor north window/ Window putty	PLM	None
WP4	Main level east window/ Window putty	PLM	None
WP5	Main level north window/ Window putty	PLM	None
WP6	Main level west window/ Window putty	PLM	None

Bold value denotes asbestos-containing material
PLM – Polarized Light Microscopy

Analytical results did not identify ACM within the areas sampled by SEA at the Building.

Lead-Based Paint and Coatings

Table 2 summarizes sample details and analytical results for lead content. Sample locations are presented in Attachment 1. Laboratory results are presented in Attachment 3.

Table 2 Concentration of Lead in Paint Samples

Sample ID	Sample Location Description	Paint Colour	*Pinchin Sample ID*	*Lead Concentration (mg/kg)*	Leachable Lead Content (mg/L)
Pb1	Second floor wood window sill	Pink/cream	*L0003*	*130*	4.9
Pb2	Main level interior front doors	Green	*L0006*	*15,000*	3.6
Pb3	Main level window frames	Dark brown	*L0007*	*490*	**96**
Pb4	Main level mechanical room wall	White	*L0010*	*950*	0.017
Pb5	Main level mechanical room door	Light green	*L0011*	*3,800*	1.1
Pb6	Main level exterior door frames/stairs	Dark brown	*L0012*	*2,900*	**47**
Pb7	Main level exterior front doors	Red	*L0013*	*3,900*	4.3

Italic – denotes data reported by Pinchin (2016)
Bold value denotes exceedance of HWR leachate quality standard (5 mg/L).

SEA's paint samples Pb3 (Dark brown – 96 mg/L) collected from the window frames and Pb6 (Dark brown – 47 mg/L) collected from the door frames/stairs at the Building and analyzed for lead leachability exceed the HWR leachate quality standard of 5 mg/L.

CONCLUSIONS AND RECOMMENDATIONS

A supplemental HazMat assessment completed for the Building located at 610 Railway Street in Nelson, BC did not identify ACM from select sample locations. Leachability characterization confirmed lead concentrations above the HWR leachate quality standard of 5 mg/L. Potential HazMat other than asbestos and lead-based paint were not identified in the planned renovation areas. The following summarizes areas of concern and remedial recommendations with respect to lead-based paint at the Building.

Lead-Based Paint and Coatings

Lead paint coatings exceeding the HWR leachate quality standard of 5 mg/L and deemed hazardous waste:

- Dark Brown Exterior Window Frames; and
- Dark Brown Exterior Door Frames and Stairs.

These paint coatings must be disposed of in accordance with HWR and RDCK requirements at a facility licensed to accept such materials.

A copy of this report must be kept onsite during the renovation works. Should any additional suspect HazMat be identified during the renovation works, a Qualified Person should be retained to assess the material(s).

STATEMENT OF LIMITATIONS

This report has been prepared solely for the use of City of Nelson (Nelson). By using this report Nelson agrees that they will review and use the report in its entirety. Any use which other parties make of this report, or any reliance on, or decision made based on it, are the responsibility of such parties. Steer Environmental Associates Ltd. accepts no responsibility for damages, if any, suffered by other parties as a result of decisions made or actions based on this report.

The services performed as described in this report were conducted in a manner consistent with the level of care and skill normally exercised by other members of the environmental science profession currently practicing under similar conditions, subject to the time limits, and financial and physical constraints applicable to the services.

The inspection was performed within accessible spaces within the Building. Building conditions and accessibility limitations may not permit the complete inspection of all spaces. As such, the Building may contain hazardous materials not identified by this report. The findings and conclusions of the investigation are specific to the information and assumptions upon which they are based.

PROFESSIONAL STATEMENT

The persons signing this document have demonstrable experience in the field of hazardous building materials assessment

We trust that the preceding provides you with the information you require at this time. Should you require clarification or have any questions, please do not hesitate to contact the under signed.

Sincerely,

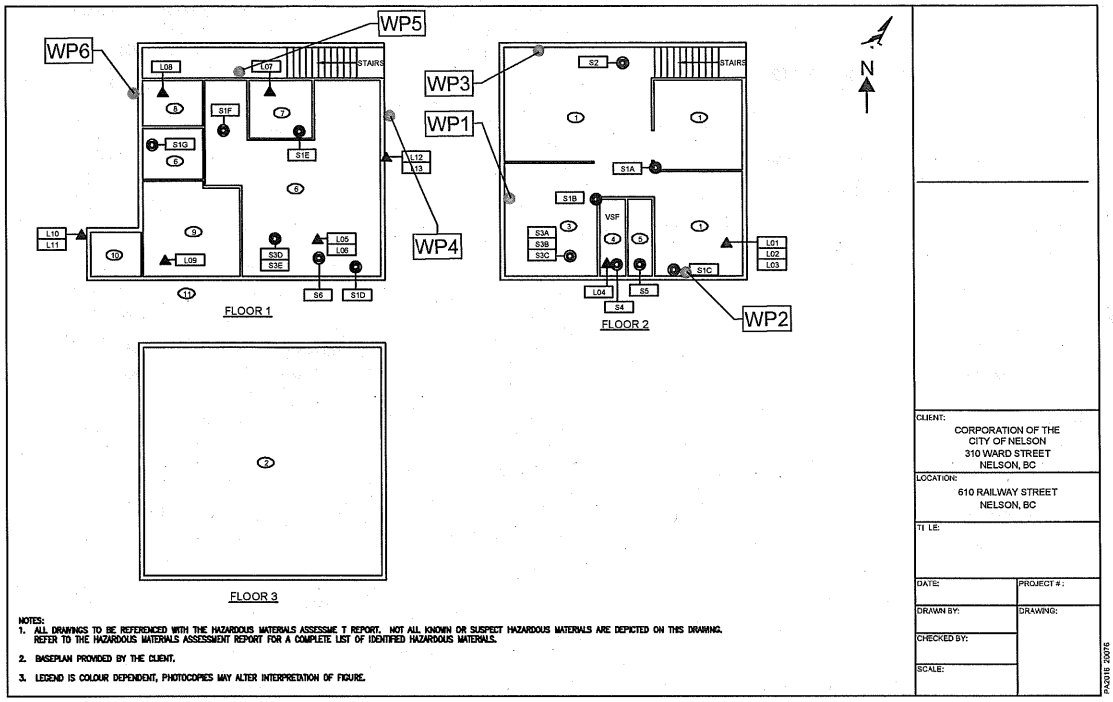
Steer Environmental Associates Ltd.

Ryan Blake, B.Sc., AHERA
Environmental Technician

Jennifer Mayberry, B.Sc., LEED AP BD+C
Senior Environmental Scientist

Enclosures: Attachment 1 – Figure 1 – 610 Railway St. Supplemental Sampling and Floor Plan
Attachment 2 – Asbestos Laboratory Analytical Results
Attachment 3 – Lead Laboratory Analytical Results

Figure 1 - 610 Railway St. Supplemental Sampling and Floor Plan



LEGEND

- WALL SAMPLE

CARO ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

REPORTED TO	Steer Environmental Associated Ltd. 1515 Holland Street Nelson, BC V1L 3E2		
ATTENTION	Jeremy Phelan	**WORK ORDER**	8081788
PO NUMBER	0561	**RECEIVED / TEMP**	2018-08-20 09:15 / NA
PROJECT	0561	**REPORTED**	2018-08-21 13:07
PROJECT INFO	Nelson Coke & Gas	**COC NUMBER**	No Number

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at estclair@caro.ca

Authorized By:

Eilish St.Clair, B.Sc., C.I.T.
Client Service Representative

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081788
PROJECT	0561	**REPORTED**	2018-08-21 13:07

Analyte	Result	RL	Units	Analyzed	Qualifier
WP1 - Window Putty - Second Floor West Window (8081788-01) | Matrix: Solid | Sampled: 2018-08-17					
Polarized Light Microscopy Analysis					
Asbestos Fibres	**None Found**	0.5	% dry	2018-08-20	
Non-Asbestos Fibres	< 1	1.0	% dry	2018-08-20	
Non-Fibrous Materials	**> 99**	1.0	% dry	2018-08-20	
WP2 - Window Putty - Second Floor South Window (8081788-02) | Matrix: Solid | Sampled: 2018-08-17					
Polarized Light Microscopy Analysis					
Asbestos Fibres	**None Found**	0.5	% dry	2018-08-20	
Non-Asbestos Fibres	< 1	1.0	% dry	2018-08-20	
Non-Fibrous Materials	**> 99**	1.0	% dry	2018-08-20	
WP3 - Window Putty - Second Floor North Window (8081788-03) | Matrix: Solid | Sampled: 2018-08-17					
Polarized Light Microscopy Analysis					
Asbestos Fibres	**None Found**	0.5	% dry	2018-08-20	
Non-Asbestos Fibres	< 1	1.0	% dry	2018-08-20	
Non-Fibrous Materials	**> 99**	1.0	% dry	2018-08-20	
WP4 - Window Putty - Main Floor East Window (8081788-04) | Matrix: Solid | Sampled: 2018-08-17					
Polarized Light Microscopy Analysis					
Asbestos Fibres	**None Found**	0.5	% dry	2018-08-20	
Non-Asbestos Fibres	< 1	1.0	% dry	2018-08-20	
Non-Fibrous Materials	**> 99**	1.0	% dry	2018-08-20	
WP5 - Window Putty - Main Floor North Window (8081788-05) | Matrix: Solid | Sampled: 2018-08-17					
Polarized Light Microscopy Analysis					
Asbestos Fibres	**None Found**	0.5	% dry	2018-08-20	
Non-Asbestos Fibres	< 1	1.0	% dry	2018-08-20	
Non-Fibrous Materials	**> 99**	1.0	% dry	2018-08-20	
WP6 - Window Putty - Main Floor West Window (8081788-06) | Matrix: Solid | Sampled: 2018-08-17					
Polarized Light Microscopy Analysis					
Asbestos Fibres	**None Found**	0.5	% dry	2018-08-20	
Non-Asbestos Fibres	< 1	1.0	% dry	2018-08-20	
Non-Fibrous Materials	**> 99**	1.0	% dry	2018-08-20	

CARO ANALYTICAL SERVICES

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081788
PROJECT	0561	**REPORTED**	2018-08-21 13:07

Analysis Description	Method Ref.	Technique	Location
Asbestos in Bulk Materials in Solid	EPA 600/R-93/116	Polarized Light Microscopy (PLM)	Kelowna

Glossary of Terms:

RL	Reporting Limit (default)
% dry	Percent (dry weight basis)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
>	Greater than the specified Result
EPA	United States Environmental Protection Agency Test Methods

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

CARO ANALYTICAL SERVICES

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081788
PROJECT	0561	**REPORTED**	2018-08-21 13:07

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup)**: An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS)**: A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS)**: A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM)**: A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polarized Light Microscopy Analysis, Batch B8H1405										
Blank (B8H1405-BLK1)				Prepared: 2018-08-20, Analyzed: 2018-08-20						
Asbestos Fibres	None Found	0.5	% dry							
Non-Asbestos Fibres	< 1.0	1.0	% dry							
Non-Fibrous Materials	> 99	1.0	% dry							
Blank (B8H1405-BLK2)				Prepared: 2018-08-20, Analyzed: 2018-08-20						
Asbestos Fibres	None Found	0.5	% dry							
Non-Asbestos Fibres	< 1.0	1.0	% dry							
Non-Fibrous Materials	> 99	1.0	% dry							
Blank (B8H1405-BLK3)				Prepared: 2018-08-20, Analyzed: 2018-08-20						
Asbestos Fibres	None Found	0.5	% dry							
Non-Asbestos Fibres	< 1.0	1.0	% dry							
Non-Fibrous Materials	> 99	1.0	% dry							
Reference (B8H1405-SRM1)				Prepared: 2018-08-20, Analyzed: 2018-08-20						
Amosite Asbestos	(5 - 10)	0.5	% dry	8.00		88	80-120			
Non-Asbestos Fibres	< 1.0	1.0	% dry	0.0000500			60-140			
Non-Fibrous Materials	(90 - 95)	1.0	% dry	92.0		101	60-140			
Reference (B8H1405-SRM2)				Prepared: 2018-08-20, Analyzed: 2018-08-20						
Amosite Asbestos	(5 - 10)	0.5	% dry	8.00		88	80-120			
Non-Asbestos Fibres	< 1.0	1.0	% dry	0.0000500			60-140			
Non-Fibrous Materials	(90 - 95)	1.0	% dry	92.0		101	60-140			
Reference (B8H1405-SRM3)				Prepared: 2018-08-20, Analyzed: 2018-08-20						
Amosite Asbestos	(5 - 10)	0.5	% dry	8.00		88	80-120			
Non-Asbestos Fibres	< 1.0	1.0	% dry	0.0000500			60-140			
Non-Fibrous Materials	(90 - 95)	1.0	% dry	92.0		101	60-140			

CARO ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

REPORTED TO	Steer Environmental Associated Ltd. 1515 Holland Street Nelson, BC V1L 3E2		
ATTENTION	Jeremy Phelan	**WORK ORDER**	8081977
PO NUMBER	0561	**RECEIVED / TEMP**	2018-08-20 08:30 / NA
PROJECT	0561	**REPORTED**	2018-08-29 13:07
PROJECT INFO	Nelson Coke & Gas		

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks

You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry

It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve

Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at estclair@caro.ca

Authorized By:

Eilish St.Clair, B.Sc., C.I.T.
Client Service Representative

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081977
PROJECT	0561	**REPORTED**	2018-08-29 13:07

Analyte	Result	RL	Units	Analyzed	Qualifier
Pb1-TCLP (8081977-01) | Matrix: Solid | Sampled: 2018-08-17					
TCLP Non-Volatile Extraction Details					LCH1
Extraction Fluid pH	**4.93**		pH units	2018-08-28	
Final Extract pH	**5.02**		pH units	2018-08-28	
TCLP Metals					
Antimony	**0.005**	0.005		2018-08-28	
Arsenic	**0.040**	0.010		2018-08-28	
Barium	**0.18**	1.0		2018-08-28	
Beryllium	< 0.050	0.050		2018-08-28	
Boron	**0.81**	0.50		2018-08-28	
Cadmium	**0.014**	0.001		2018-08-28	
Chromium	**0.045**	0.050		2018-08-28	
Cobalt	**1.7**	0.020		2018-08-28	
Copper	**0.099**	0.10		2018-08-28	
Iron	**0.41**	1.0		2018-08-28	
Lead	**4.9**	0.010		2018-08-28	
Mercury	**0.0009**	0.002		2018-08-28	
Nickel	< 0.10	0.10		2018-08-28	
Selenium	< 0.020	0.020		2018-08-28	
Silver	< 0.002	0.002		2018-08-28	
Thallium	**0.0003**	0.010		2018-08-28	
Uranium	**0.00007**	0.020		2018-08-28	
Vanadium	< 0.050	0.050		2018-08-28	
Zinc	**35**	0.50		2018-08-28	
Zirconium	< 0.050	0.050		2018-08-28	
Pb2-TCLP (8081977-02) | Matrix: Solid | Sampled: 2018-08-17					
TCLP Non-Volatile Extraction Details					LCH1
Extraction Fluid pH	**4.93**		pH units	2018-08-28	
Final Extract pH	**5.54**		pH units	2018-08-28	
TCLP Metals					
Antimony	**0.064**	0.005		2018-08-28	
Arsenic	**0.062**	0.010		2018-08-28	
Barium	**0.27**	1.0		2018-08-28	
Beryllium	< 0.050	0.050		2018-08-28	
Boron	**1.5**	0.50		2018-08-28	
Cadmium	**0.006**	0.001		2018-08-28	
Chromium	**0.18**	0.050		2018-08-28	
Cobalt	**2.7**	0.020		2018-08-28	
Copper	**0.74**	0.10		2018-08-28	
Iron	**0.97**	1.0		2018-08-28	
Lead	**3.6**	0.010		2018-08-28	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081977
PROJECT	0561	**REPORTED**	2018-08-29 13:07

Analyte	Result	RL	Units	Analyzed	Qualifier
Pb2-TCLP (8081977-02) | Matrix: Solid | Sampled: 2018-08-17, Continued					
TCLP Metals, Continued					
Mercury	**0.003**	0.002		2018-08-28	
Nickel	< 0.10	0.10		2018-08-28	
Selenium	< 0.020	0.020		2018-08-28	
Silver	**0.0004**	0.002		2018-08-28	
Thallium	**0.0002**	0.010		2018-08-28	
Uranium	**0.0004**	0.020		2018-08-28	
Vanadium	**0.012**	0.050		2018-08-28	
Zinc	**8.2**	0.50		2018-08-28	
Zirconium	**0.004**	0.050		2018-08-28	
Pb3-TCLP (8081977-03) | Matrix: Solid | Sampled: 2018-08-17					
TCLP Non-Volatile Extraction Details					LCH1
Extraction Fluid pH	**4.93**		pH units	2018-08-28	
Final Extract pH	**5.28**		pH units	2018-08-28	
TCLP Metals					
Antimony	**0.009**	0.005		2018-08-28	
Arsenic	**0.011**	0.010		2018-08-28	
Barium	**0.17**	1.0		2018-08-28	
Beryllium	< 0.050	0.050		2018-08-28	
Boron	**0.11**	0.50		2018-08-28	
Cadmium	**0.034**	0.001		2018-08-28	
Chromium	**0.27**	0.050		2018-08-28	
Cobalt	**0.087**	0.020		2018-08-28	
Copper	< 0.10	0.10		2018-08-28	
Iron	**1.7**	1.0		2018-08-28	
Lead	**96**	0.010		2018-08-28	
Mercury	< 0.002	0.002		2018-08-28	
Nickel	< 0.10	0.10		2018-08-28	
Selenium	< 0.020	0.020		2018-08-28	
Silver	< 0.002	0.002		2018-08-28	
Thallium	**0.0005**	0.010		2018-08-28	
Uranium	**0.0002**	0.020		2018-08-28	
Vanadium	< 0.050	0.050		2018-08-28	
Zinc	**9.7**	0.50		2018-08-28	
Zirconium	< 0.050	0.050		2018-08-28	
Pb4-TCLP (8081977-04) | Matrix: Solid | Sampled: 2018-08-17					
TCLP Non-Volatile Extraction Details					
Extraction Fluid pH	**4.93**		pH units	2018-08-28	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081977
PROJECT	0561	**REPORTED**	2018-08-29 13:07

Analyte	Result	RL	Units	Analyzed	Qualifier
Pb4-TCLP (8081977-04) | Matrix: Solid | Sampled: 2018-08-17, Continued					
TCLP Non-Volatile Extraction Details, Continued					
Final Extract pH	**7.07**		pH units	2018-08-28	
TCLP Metals					
Antimony	**0.003**	0.005		2018-08-28	
Arsenic	< 0.010	0.010		2018-08-28	
Barium	**0.22**	1.0		2018-08-28	
Beryllium	< 0.050	0.050		2018-08-28	
Boron	**0.20**	0.50		2018-08-28	
Cadmium	**0.002**	0.001		2018-08-28	
Chromium	< 0.050	0.050		2018-08-28	
Cobalt	**0.004**	0.020		2018-08-28	
Copper	< 0.10	0.10		2018-08-28	
Iron	< 1.0	1.0		2018-08-28	
Lead	**0.017**	0.010		2018-08-28	
Mercury	**0.0007**	0.002		2018-08-28	
Nickel	< 0.10	0.10		2018-08-28	
Selenium	< 0.020	0.020		2018-08-28	
Silver	< 0.002	0.002		2018-08-28	
Thallium	< 0.010	0.010		2018-08-28	
Uranium	**0.003**	0.020		2018-08-28	
Vanadium	**0.013**	0.050		2018-08-28	
Zinc	**0.24**	0.50		2018-08-28	
Zirconium	< 0.050	0.050		2018-08-28	
Pb5-TCLP (8081977-05) | Matrix: Solid | Sampled: 2018-08-17					
TCLP Non-Volatile Extraction Details					LCH1
Extraction Fluid pH	**4.93**		pH units	2018-08-28	
Final Extract pH	**5.08**		pH units	2018-08-28	
TCLP Metals					
Antimony	**0.003**	0.005		2018-08-28	
Arsenic	< 0.010	0.010		2018-08-28	
Barium	**0.56**	1.0		2018-08-28	
Beryllium	< 0.050	0.050		2018-08-28	
Boron	**0.17**	0.50		2018-08-28	
Cadmium	**0.007**	0.001		2018-08-28	
Chromium	**0.022**	0.050		2018-08-28	
Cobalt	**0.60**	0.020		2018-08-28	
Copper	< 0.10	0.10		2018-08-28	
Iron	**120**	1.0		2018-08-28	
Lead	**1.1**	0.010		2018-08-28	
Mercury	< 0.002	0.002		2018-08-28	

TEST RESULTS

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081977
PROJECT	0561	**REPORTED**	2018-08-29 13:07

Analyte	Result	RL	Units	Analyzed	Qualifier
Pb5-TCLP (8081977-05) | Matrix: Solid | Sampled: 2018-08-17, Continued					
TCLP Metals, Continued					
Nickel	**0.087**	0.10		2018-08-28	
Selenium	< 0.020	0.020		2018-08-28	
Silver	< 0.002	0.002		2018-08-28	
Thallium	**0.002**	0.010		2018-08-28	
Uranium	**0.0002**	0.020		2018-08-28	
Vanadium	< 0.050	0.050		2018-08-28	
Zinc	**8.6**	0.50		2018-08-28	
Zirconium	< 0.050	0.050		2018-08-28	
Pb6-TCLP (8081977-06) | Matrix: Solid | Sampled: 2018-08-17					
TCLP Non-Volatile Extraction Details					LCH1
Extraction Fluid pH	**4.93**		pH units	2018-08-28	
Final Extract pH	**5.01**		pH units	2018-08-28	
TCLP Metals					
Antimony	**0.015**	0.005		2018-08-28	
Arsenic	**0.006**	0.010		2018-08-28	
Barium	**0.36**	1.0		2018-08-28	
Beryllium	< 0.050	0.050		2018-08-28	
Boron	**0.23**	0.50		2018-08-28	
Cadmium	**0.019**	0.001		2018-08-28	
Chromium	**0.040**	0.050		2018-08-28	
Cobalt	**0.16**	0.020		2018-08-28	
Copper	< 0.10	0.10		2018-08-28	
Iron	**0.89**	1.0		2018-08-28	
Lead	**47**	0.010		2018-08-28	
Mercury	< 0.002	0.002		2018-08-28	
Nickel	< 0.10	0.10		2018-08-28	
Selenium	< 0.020	0.020		2018-08-28	
Silver	< 0.002	0.002		2018-08-28	
Thallium	**0.0005**	0.010		2018-08-28	
Uranium	**0.0003**	0.020		2018-08-28	
Vanadium	< 0.050	0.050		2018-08-28	
Zinc	**41**	0.50		2018-08-28	
Zirconium	< 0.050	0.050		2018-08-28	
Pb7-TCLP (8081977-07) | Matrix: Solid | Sampled: 2018-08-17					
TCLP Non-Volatile Extraction Details					LCH1
Extraction Fluid pH	**4.93**		pH units	2018-08-28	
Final Extract pH	**5.96**		pH units	2018-08-28	

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081977
PROJECT	0561	**REPORTED**	2018-08-29 13:07

Analyte	Result	RL	Units	Analyzed	Qualifier
Pb7-TCLP (8081977-07) | Matrix: Solid | Sampled: 2018-08-17, Continued					
TCLP Metals					
Antimony	**0.040**	0.005		2018-08-28	
Arsenic	**0.044**	0.010		2018-08-28	
Barium	**0.28**	1.0		2018-08-28	
Beryllium	< 0.050	0.050		2018-08-28	
Boron	**0.94**	0.50		2018-08-28	
Cadmium	**0.024**	0.001		2018-08-28	
Chromium	**0.28**	0.050		2018-08-28	
Cobalt	**0.51**	0.020		2018-08-28	
Copper	**0.56**	0.10		2018-08-28	
Iron	**1.9**	1.0		2018-08-28	
Lead	**4.3**	0.010		2018-08-28	
Mercury	**0.006**	0.002		2018-08-28	
Nickel	< 0.10	0.10		2018-08-28	
Selenium	< 0.020	0.020		2018-08-28	
Silver	**0.001**	0.002		2018-08-28	
Thallium	**0.0002**	0.010		2018-08-28	
Uranium	**0.0005**	0.020		2018-08-28	
Vanadium	**0.014**	0.050		2018-08-28	
Zinc	**10**	0.50		2018-08-28	
Zirconium	< 0.050	0.050		2018-08-28	

Sample Qualifiers:

LCH1 Insufficient sample available to meet EPA 1311/1312 criterion of 100 g.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081977
PROJECT	0561	**REPORTED**	2018-08-29 13:07

Analysis Description	Method Ref.	Technique	Location
TCLP Extraction in Solid	EPA 1311	20:1 Leach for 18 h	Richmond
TCLP Leachable Metals in Solid	EPA 200.2* / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
pH units	pH < 7 = acidic, ph > 7 = basic
EPA	United States Environmental Protection Agency Test Methods

General Comments:

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CARO ANALYTICAL SERVICES

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081977
PROJECT	0561	**REPORTED**	2018-08-29 13:07

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Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
TCLP Metals, Batch B8H2196										
Blank (B8H2196-BLK1)				Prepared: 2018-08-28, Analyzed: 2018-08-28						
Antimony	< 0.005	0.005	mg/L							
Arsenic	< 0.010	0.010	mg/L							
Barium	< 1.0	1.0	mg/L							
Beryllium	< 0.050	0.050	mg/L							
Boron	< 0.50	0.50	mg/L							
Cadmium	< 0.001	0.001	mg/L							
Chromium	< 0.050	0.050	mg/L							
Cobalt	< 0.020	0.020	mg/L							
Copper	< 0.10	0.10	mg/L							
Iron	< 1.0	1.0	mg/L							
Lead	< 0.010	0.010	mg/L							
Mercury	< 0.002	0.002	mg/L							
Nickel	< 0.10	0.10	mg/L							
Selenium	< 0.020	0.020	mg/L							
Silver	< 0.002	0.002	mg/L							
Thallium	< 0.010	0.010	mg/L							
Uranium	< 0.020	0.020	mg/L							
Vanadium	< 0.050	0.050	mg/L							
Zinc	< 0.50	0.50	mg/L							
Zirconium	< 0.050	0.050	mg/L							
Matrix Spike (B8H2196-MS1)		**Source: 8081977-03**		Prepared: 2018-08-28, Analyzed: 2018-08-28						
Antimony	0.379	0.005	mg/L	0.400	0.009	93	84-125			
Arsenic	0.229	0.010	mg/L	0.200	0.011	109	88-124			
Barium	1.11	1.0	mg/L	1.00	< 1.00	94	84-124			
Beryllium	0.110	0.050	mg/L	0.100	< 0.050	110	58-128			
Cadmium	0.125	0.001	mg/L	0.100	0.034	90	84-119			
Chromium	0.740	0.050	mg/L	0.400	0.275	116	82-126			
Cobalt	0.516	0.020	mg/L	0.400	0.087	107	81-120			
Copper	0.467	0.10	mg/L	0.400	< 0.100	117	69-141			
Iron	3.78	1.0	mg/L	2.00	1.71	104	74-125			
Lead	94.1	0.010	mg/L	0.200	95.8	NR	71-125			SPK1
Nickel	0.348	0.10	mg/L	0.400	< 0.100	87	81-119			
Selenium	0.113	0.020	mg/L	0.100	< 0.020	113	89-129			
Silver	0.085	0.002	mg/L	0.100	< 0.002	85	68-122			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO	Steer Environmental Associated Ltd.	**WORK ORDER**	8081977
PROJECT	0561	**REPORTED**	2018-08-29 13:07

Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
TCLP Metals, Batch B8H2196, Continued										
Matrix Spike (B8H2196-MS1), Continued		**Source: 8081977-03**		Prepared: 2018-08-28, Analyzed: 2018-08-28						
Thallium	0.113	0.010	mg/L	0.100	< 0.010	112	86-117			
Vanadium	0.460	0.050	mg/L	0.400	< 0.050	115	76-126			
Zinc	10.7	0.50	mg/L	1.00	9.74	98	76-126			
TCLP Non-Volatile Extraction Details, Batch B8H2014										
Blank (B8H2014-BLK1)				Prepared: 2018-08-28, Analyzed: 2018-08-28						
Extraction Fluid pH	4.93		pH units							
Final Extract pH	4.91		pH units							

QC Qualifiers:

SPK1 The recovery of this analyte was outside of established control limits. The data was accepted based on performance of other batch QC.

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SEA #0561

November 1st, 2018

City of Nelson
80 Lakeside Drive
Nelson, BC V1L 5S4

Attention: Peter Sinstadt
Facilities Maintenance Manager

RE: Risk Assessment for Silica-Containing and Lead-Based Materials, 610 Railway Street, Nelson, BC

Steer Environmental Associates Ltd. (SEA) has been retained by the City of Nelson (the City) to complete a risk assessment for abatement activities of silica-containing and lead-based materials at 610 Railway Street in Nelson, BC (the Building). The risk assessment was completed with the objective of classifying lead-based coating abatement work in accordance with Occupational Health and Safety Regulation (BC Reg. 296-97) Part 6 (6.6 and 6.59.1) and Part 20 (20.112).

BACKGROUND INFORMATION

Pinchin West (Pinchin) completed a hazardous materials (HazMat) assessment of the Building in February 2016. SEA completed a supplemental HazMat assessment in August 2018. The City has issued a Request for Proposal (RFP) to conduct several phases of restoration at the work, including masonry repointing, rough carpentry, wood siding installation, sheet metal flashing and trim installation, and repainting of exterior surfaces including windows and doors in areas with confirmed HazMat. This risk assessment and associated exposure control plans (ECP) will be provided as an addendum to the RFP. The City has provided SEA with a proposed scope of abatement activities including removal/abatement methods for materials confirmed to contain silica and lead-based paint in planned restoration areas.

PROJECT DESCRIPTION AND OBJECTIVES

The objective of this project is to manage building materials confirmed or suspected to contain silica and lead in areas proposed to be disturbed during Building restoration.

RISK ASSESSMENT

The determinants of risk for exposure of receptors to each material containing or contaminated with silica and/or lead paint, risk classification, and requirements for safe work procedures including containment, controls, personal protective equipment (PPE), decontamination, and monitoring are presented in Attachment 1.

1.1 Other Controls or Work Procedures

Details pertaining to the exposure controls and work procedures summarized in Attachment 1 are presented in the Exposure Control Plans (ECP) for silica-containing materials and lead-based paint in Attachments 2, 3, and 4, respectively.

Prior to decommissioning of protective controls, the work areas will be subject to a final inspection completed by a Qualified Person as defined by WorkSafe BC Regulations Part 6.1.1 and Part 20.112.

A report must be completed summarizing the work with a statement of completion.

STATEMENT OF LIMITATIONS

This report has been prepared solely for the use of the City of Nelson (the City). By using this report, the City agrees that they will review and use the report in its entirety. Any use which other parties make of this report, or any reliance on, or decision made based on it, are the responsibility of such parties. Steer Environmental Associates Ltd. accepts no responsibility for damages, if any, suffered by other parties as a result of decisions made or actions based on this report. The risk assessment is limited to those materials or areas of concern as identified in the initial HazMat survey. Other areas of concern may exist but were not addressed within the scope of this risk assessment. The services performed as described in this report were conducted in a manner consistent with the level of care and skill normally exercised by other members of the environmental science profession currently practicing under similar conditions, subject to the time limits, financial and physical constraints applicable to the services, and in this geographical area at the time the work was performed.

PROFESSIONAL STATEMENT

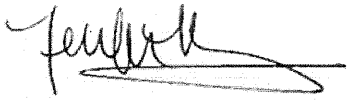
The person signing this document has demonstrable experience in the field of hazardous building materials assessment and air monitoring.

CLOSURE

We trust that the preceding provides you with the information you require at this time. Should you require clarification or have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Steer Environmental Associates Ltd.



Jeremy Phelan, P.Ag., AHERA
Environmental Scientist

Jennifer Mayberry, B.Sc., LEED AP BD+C
Senior Environmental Scientist

Enclosed: Attachment 1 – Risk
Attachment 2 – Exposure Control Plan, Silica-Containing Materials
Attachment 3 – Exposure Control Plan, Lead-Based Paints

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SEA Project # 561

Risk Assessment Summary - 610 Railway Street Nelson, BC

Hazardous Material	Lead		
Building Material	Paint	Pink/cream	
Concentration	130 ppm		
Location	2nd floor wood window sill		
Amount	100 ft^2		
Condition	Good		
Proposed Activities	Manual sanding/scraping with hand tools		
Planned duration	1 days		
Risk Level	Low-Moderate		
Containment	Designated Work Area*		
Controls	Signage at work entrance HEPA-equipped vacuum	Restrictive barriers Misting prior to cutting	Drop sheets
PPE	Impervious coveralls Eye protection	Laceless rubber boots Half-face respirator (P100 filters)	Gloves
Air Monitoring	Occupational	Ambient	Clearance
Decontamination	HEPA vacuum clothing	HEPA vacuum site	Wet washdown of site

* Designated Work Area: A work area that includes the following measures:

a) The boundaries of the work area identified by barricades, fences, or similar means with signs posted at all entrances to the work area indicating that lead abatement work is in progress, the hazards of lead exposure, and the precautions that are required for entering into the work area.

b) The work area cleared of all moveable objects, equipment, and materials that are not required during the work.

c) Polyethylene drop sheets placed on the floor of the work area beneath the materials for which lead-coated surfaces are being worked on, and over objects and materials that cannot be removed from the work area.

d) Access to an Abatement Work Area is restricted to trained, authorized, and supervised workers wearing appropriate respiratory protection and protective clothing.

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SEA Project # 561

Risk Assessment Summary - 610 Railway Street Nelson, BC

Hazardous Material	Lead		
Building Material	Paint green		
Concentration	15000 ppm		
Location	main level, interior front doors		
Amount	100 ft^2		
Condition	Good		
Proposed Activities	Manual sanding/scraping with hand tools		
Planned duration	1 days		
Risk Level	Low-Moderate		
Containment	Designated Work Area*		
Controls	Signage at work entrance HEPA-equipped vacuum	Restrictive barriers Misting prior to cutting	Drop sheets
PPE	Impervious coveralls Eye protection	Laceless rubber boots Half-face respirator (P100 filters)	Gloves
Air Monitoring	Occupational	Ambient	Clearance
Decontamination	HEPA vacuum clothing	HEPA vacuum site	Wet washdown of site

* Designated Work Area: A work area that includes the following measures:

a) The boundaries of the work area identified by barricades, fences, or similar means with signs posted at all entrances to the work area indicating that lead abatement work is in progress, the hazards of lead exposure, and the precautions that are required for entering into the work area.

b) The work area cleared of all moveable objects, equipment, and materials that are not required during the work.

c) Polyethylene drop sheets placed on the floor of the work area beneath the materials for which lead-coated surfaces are being worked on, and over objects and materials that cannot be removed from the work area.

d) Access to an Abatement Work Area is restricted to trained, authorized, and supervised workers wearing appropriate respiratory protection and protective clothing.

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SEA Project # 561

Risk Assessment Summary - 610 Railway Street Nelson, BC

Hazardous Material	Lead		
Building Material	Paint dark brown		
Concentration	490 ppm		
Location	main level, window frames		
Amount	100 ft^2		
Condition	Good		
Proposed Activities	Manual sanding/scraping with hand tools		
Planned duration	1 days		
Risk Level	Low-Moderate		
Containment	Designated Work Area*		
Controls	Signage at work entrance HEPA-equipped vacuum	Restrictive barriers Misting prior to cutting	Drop sheets
PPE	Impervious coveralls Eye protection	Laceless rubber boots Half-face respirator (P100 filters)	Gloves
Air Monitoring	Occupational	Ambient	Clearance
Decontamination	HEPA vacuum clothing	HEPA vacuum site	Wet washdown of site

* Designated Work Area: A work area that includes the following measures:

a) The boundaries of the work area identified by barricades, fences, or similar means with signs posted at all entrances to the work area indicating that lead abatement work is in progress, the hazards of lead exposure, and the precautions that are required for entering into the work area.

b) The work area cleared of all moveable objects, equipment, and materials that are not required during the work.

c) Polyethylene drop sheets placed on the floor of the work area beneath the materials for which lead-coated surfaces are being worked on, and over objects and materials that cannot be removed from the work area.

d) Access to an Abatement Work Area is restricted to trained, authorized, and supervised workers wearing appropriate respiratory protection and protective clothing.

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SEA Project # 561

Risk Assessment Summary - 610 Railway Street Nelson, BC

Hazardous Material	Lead		
Building Material	Paint	white	
Concentration	950 ppm		
Location	main level, mechanical room wall		
Amount	100 ft^2		
Condition	Good		
Proposed Activities	Manual sanding/scraping with hand tools		
Planned duration	1 days		
Risk Level	Low-Moderate		
Containment	Designated Work Area*		
Controls	Signage at work entrance HEPA-equipped vacuum	Restrictive barriers Misting prior to cutting	Drop sheets
PPE	Impervious coveralls Eye protection	Laceless rubber boots Half-face respirator (P100 filters)	Gloves
Air Monitoring	Occupational	Ambient	Clearance
Decontamination	HEPA vacuum clothing	HEPA vacuum site	Wet washdown of site

* Designated Work Area: A work area that includes the following measures:

a) The boundaries of the work area identified by barricades, fences, or similar means with signs posted at all entrances to the work area indicating that lead abatement work is in progress, the hazards of lead exposure, and the precautions that are required for entering into the work area.

b) The work area cleared of all moveable objects, equipment, and materials that are not required during the work.

c) Polyethylene drop sheets placed on the floor of the work area beneath the materials for which lead-coated surfaces are being worked on, and over objects and materials that cannot be removed from the work area.

d) Access to an Abatement Work Area is restricted to trained, authorized, and supervised workers wearing appropriate respiratory protection and protective clothing.

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SEA Project # 561

Risk Assessment Summary - 610 Railway Street Nelson, BC

Hazardous Material	Lead		
Building Material	Paint light green		
Concentration	3800 ppm		
Location	main level, mechanical room door		
Amount	100 ft^2		
Condition	Good		
Proposed Activities	Manual sanding/scraping with hand tools		
Planned duration	1 days		
Risk Level	Low-Moderate		
Containment	Designated Work Area*		
Controls	Signage at work entrance HEPA-equipped vacuum	Restrictive barriers Misting prior to cutting	Drop sheets
PPE	Impervious coveralls Eye protection	Laceless rubber boots Half-face respirator (P100 filters)	Gloves
Air Monitoring	Occupational	Ambient	Clearance
Decontamination	HEPA vacuum clothing	HEPA vacuum site	Wet washdown of site

* Designated Work Area: A work area that includes the following measures:

a) The boundaries of the work area identified by barricades, fences, or similar means with signs posted at all entrances to the work area indicating that lead abatement work is in progress, the hazards of lead exposure, and the precautions that are required for entering into the work area.

b) The work area cleared of all moveable objects, equipment, and materials that are not required during the work.

c) Polyethylene drop sheets placed on the floor of the work area beneath the materials for which lead-coated surfaces are being worked on, and over objects and materials that cannot be removed from the work area.

d) Access to an Abatement Work Area is restricted to trained, authorized, and supervised workers wearing appropriate respiratory protection and protective clothing.

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SEA Project # 561

Risk Assessment Summary - 610 Railway Street Nelson, BC

Hazardous Material	Lead		
Building Material	Paint dark brown		
Concentration	2900 ppm		
Location	main level, exterior door frames & stairs		
Amount	100 ft^2		
Condition	Good		
Proposed Activities	Manual sanding/scraping with hand tools		
Planned duration	1 days		
Risk Level	Low-Moderate		
Containment	Designated Work Area*		
Controls	Signage at work entrance HEPA-equipped vacuum	Restrictive barriers Misting prior to cutting	Drop sheets
PPE	Impervious coveralls Eye protection	Laceless rubber boots Half-face respirator (P100 filters)	Gloves
Air Monitoring	Occupational	Ambient	Clearance
Decontamination	HEPA vacuum clothing	HEPA vacuum site	Wet washdown of site

* Designated Work Area: A work area that includes the following measures:

a) The boundaries of the work area identified by barricades, fences, or similar means with signs posted at all entrances to the work area indicating that lead abatement work is in progress, the hazards of lead exposure, and the precautions that are required for entering into the work area.

b) The work area cleared of all moveable objects, equipment, and materials that are not required during the work.

c) Polyethylene drop sheets placed on the floor of the work area beneath the materials for which lead-coated surfaces are being worked on, and over objects and materials that cannot be removed from the work area.

d) Access to an Abatement Work Area is restricted to trained, authorized, and supervised workers wearing appropriate respiratory protection and protective clothing.

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SEA Project # 561

Risk Assessment Summary - 610 Railway Street Nelson, BC

Hazardous Material	Lead		
Building Material	Paint	red	
Concentration	3900 ppm		
Location	main level, exterior front doors		
Amount	90 ft^2		
Condition	Good		
Proposed Activities	Manual sanding/scraping with hand tools		
Planned duration	1 days		
Risk Level	Low-Moderate		
Containment	Designated Work Area*		
Controls	Signage at work entrance HEPA-equipped vacuum	Restrictive barriers Misting prior to cutting	Drop sheets
PPE	Impervious coveralls Eye protection	Laceless rubber boots Half-face respirator (P100 filters)	Gloves
Air Monitoring	Occupational	Ambient	Clearance
Decontamination	HEPA vacuum clothing	HEPA vacuum site	Wet washdown of site

* Designated Work Area: A work area that includes the following measures:

a) The boundaries of the work area identified by barricades, fences, or similar means with signs posted at all entrances to the work area indicating that lead abatement work is in progress, the hazards of lead exposure, and the precautions that are required for entering into the work area.

b) The work area cleared of all moveable objects, equipment, and materials that are not required during the work.

c) Polyethylene drop sheets placed on the floor of the work area beneath the materials for which lead-coated surfaces are being worked on, and over objects and materials that cannot be removed from the work area.

d) Access to an Abatement Work Area is restricted to trained, authorized, and supervised workers wearing appropriate respiratory protection and protective clothing.

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SEA Project # 561

Risk Assessment Summary - 610 Railway Street Nelson, BC

Hazardous Material	Silica dust		
Building Material	Masonry		
Concentration	n/a	ppm	
Location	exterior		
Amount	TBD	ft^2	
Condition	Good		
Proposed Activities	Drilling/cutting/grinding		
Planned duration	TBD	days	
Risk Level	Low-Moderate		
Containment	Designated Work Area*		
Controls	Signage at work entrance HEPA-equipped vacuum	Restrictive barriers Local exhaust ventilation (LEV) unit	Misting prior to cutting
PPE	Impervious coveralls Eye protection	Laceless rubber boots Half-face respirator (P100 filters)	Gloves
Air Monitoring	Ambient		
Decontamination	HEPA vacuum clothing	HEPA vacuum site	Wet washdown of site

* Designated Work Area: A work area that includes the following measures:

a) The boundaries of the work area identified by barricades, fences, or similar means with signs posted at all entrances to the work area indicating that lead abatement work is in progress, the hazards of lead exposure, and the precautions that are required for entering into the work area.

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c) Polyethylene drop sheets placed on the floor of the work area beneath the materials for which lead-coated surfaces are being worked on, and over objects and materials that cannot be removed from the work area.

d) Access to an Abatement Work Area is restricted to trained, authorized, and supervised workers wearing appropriate respiratory protection and protective clothing.

Exposure Control Plan for Drilling/Cutting/Grinding of Building Materials Containing Silica by Powered and Non-Powered Hand Tools

Disturbance of silica-containing materials (e.g., concrete, cement, mortar, masonry, tiles, brick, granite) without proper controls can generate silica dust. Breathing in silica dust can cause silicosis (a serious and irreversible lung disease characterized by scarring and thickening of the lungs) and lung cancer. These diseases can result in death.

Company information

- City of Nelson
- 80 Lakeside Drive, Nelson, BC V1L 5S4
- Peter Sinstadt – Office (250-352-8218); Cell (250-551-8218)

Worksite information

- 610 Railway Street, Nelson, BC

Health hazards from silica dust exposure

- Silica is the most common hazard on a work site. Silica dust is extremely fine and can remain suspended in the air for hours. Workers exposed to airborne silica can inhale the dust. If handled without precautions, such as appropriate respiratory protection, silica dust may cause serious chronic health problems or even death.
- Silicosis is a chronic lung disease resulting from prolonged exposure to silica dust. Silica damages the lungs and causes the lungs to become scarred and the tissue to become thicker, making breathing difficult.
- Silica exposure may cause lung cancer.
- Due to the relationship between silica exposure and cancer, exposure to silica dust must be kept as low as reasonably achievable.

Purpose and responsibilities

- The City of Nelson has a duty to protect workers from silica dust exposure during the disturbance of silica-containing materials. Studies show that these operations generate airborne silica well in excess of safe levels. Effective controls are available to protect workers from harmful exposure.
- A combination of control measures will be required to achieve this objective. We commit to being diligent in our efforts to select the most effective control technologies available, and to ensure that the best practices, as described in this exposure control plan (ECP), are followed at our worksites.
- The work procedures we establish will protect not only our workers but also any other workers on-site who are not involved in these operations.

The employer is responsible for the following:

- Ensuring that the materials (for example, tools, equipment, personal protective equipment [PPE]), and other resources (for example, worker training) are readily available to fully implement and maintain this ECP.
- Ensuring that supervisors and workers are educated in the hazards of silica dust exposure and trained to work safely during the disturbance of silica-containing materials.

- Ensuring that workers follow the requirements of the Occupational Health and Safety Regulation (OHSR) and the *Workers Compensation Act.*
- Maintaining written records of training (for example, proper use of respirators), fit-test results, crew talks, and inspections (for example, of equipment).
- Conducting an annual review (or more often if conditions change) of the effectiveness of the ECP. This includes a review of available control technologies to ensure that these are selected and used when practicable.
- Coordinating work with the prime contractor and other employers to ensure a safe work environment.
- Initiating immediate investigations into incidents/accidents and reporting these to WorkSafeBC.

Supervisors are responsible for the following:

- Providing adequate instruction to workers on the hazards of silica dust exposure.
- Selecting and implementing the appropriate control measures.
- Ensuring that workers using respirators have been properly trained and fit-tested, and that the results are recorded.
- Ensuring that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls and wear the necessary PPE.
- Immediately correcting unsafe acts and conditions.

Workers are responsible for the following:

- Participating in all required health and safety education and training.
- Using the assigned protective equipment in an effective and safe manner.
- Following established work procedures as directed by the supervisor.
- Reporting any unsafe conditions or acts to the supervisor.
- Knowing how to reporting and report exposure incidents.

Hazard identification and risk assessment

- Silica is the most common hazard at a work site. Any activity that creates dust from silica-containing materials (e.g., chipping, sawing, grinding, hammering, drilling) can expose workers to airborne silica.
- Disturbing silica-containing materials without the use of proper controls and PPE can expose workers to silica dust that are above the exposure limit listed in the Regulation.
- Unprotected workers or other persons may be exposed to the hazards of silica dust. All silica work locations will be enclosed by barriers or barrier tape and identified with signs or placards.

Exposure limit

- The occupational exposure limit (OEL) for respirable crystalline silica is 0.025 milligrams per cubic metre (mg/m^3).
- As crystalline silica is a suspected carcinogen, the ALARA principle also applies, and workplace exposures must be reduced to levels as low as reasonably achievable.

Silica dust controls

- The Regulation requires employers to select silica dust controls based on the following hierarchy:
  1. Elimination or substitution (i.e., using a safer process or material, where possible).
  2. Engineering controls (for example, local exhaust ventilation, water for dust suppression, enclosures)
  3. Administrative controls (for example, warning signs, wash stations, scheduling workers to work as far away as possible from silica-dust generating processes)
  4. Personal protective equipment (such as respirators and disposable coveralls)
- Respirators will be used in conjunction with other controls to reduce worker exposure to silica dust, unless air monitoring information suggests otherwise.
- A DOP-tested and –certified HEPA vacuum will be used for cleanup and decontamination.

Acceptable control methods for disturbance of silica-containing materials

- The work methods in the following table are acceptable, provided that the respirator selection, dust suppression, and other controls are adhered to.
- The following control options will be used to eliminate or reduce the risk to workers from the hazards of silica dust exposure, unless air monitoring information suggests otherwise.

Work activity	Dust suppression	Other controls	Respirator type
Manual removals using hand tools on ~X ft^2 of masonry	• Material will be misted with water before disturbing. • Debris will be misted before sweeping or vacuuming. • Powered equipment (e.g., grinders) will be equipped with HEPA vacuum attachments. • A HEPA vacuum will be used to remove debris.	• Barriers (for example, a tape barrier) or enclosure systems will be installed to restrict access to the work area. • Signs will be posted at every entrance to the work area. • LEV system.	• Impervious coveralls (i.e., Tyvek) • P100 respirator, or Half- or full-PAPR equipped with P100 HEPA cartridges

Safe work planning

- Establish a barrier or partial enclosure around the work zone to restrict access by unprotected workers during low risk work.
- Inspect all dust control equipment and tools to make sure they are in good working order.
- Use and maintain all tools and equipment as specified by the manufacturer. For example, test the effectiveness of HEPA filters using dioctyl phthalate (DOP) testing or similar means at least annually, and any time a HEPA filter is replaced in a vacuum cleaner or ventilation system.
- When working on a multiple-employer site, provide the general contractor with a copy of the silica dust exposure control plan and safe work procedures. Review the procedures and work schedule with the general contractor to determine whether additional measures are required to reduce worker exposure to silica dust.

- Ensure that workers inspect their respirators before start-up.

Respiratory protective equipment

- Each worker will be fit-tested if a respirator is required.
- If a worker is required to wear a respirator that requires an effective seal with the face for proper functioning, the worker must be clean-shaven where the respirator seals with the face.
- When the worker notices a notable resistance to breathing, the respirator filters must be replaced.
- Respirators will be used, cleaned, and stored in accordance with the respiratory protection program.

Other personal protective equipment and hygiene

- Workers should change from street clothes to work clothes (including footwear) at the beginning of their work shift.
- Street clothes should be kept separate from work clothes.
- Washing (and shower, if required) facilities should be located between "clean" changing areas and "dirty" work areas.
- Workers should remove contaminated outer work clothing and thoroughly wash their hands and faces before eating, drinking, or smoking.
- No eating, drinking, smoking, chewing gum, or nail biting should be allowed in the work area.
- No food, gum, cigarettes, or other personal items should be stored in the work area.
- Coffee and lunch breaks should be taken in a clean area separate from the work area.
- Workers should remove all work clothes and shoes at the end of the work day and leave them at work.
- Workers should wash (or shower) before leaving work to ensure that any potential contamination is removed before they go home.
- Workers should not take any contaminated items home, as this may expose family members to silica dust.

Housekeeping procedures

- Dry sweeping and the use of compressed air are prohibited for removing dust and debris containing silica dust. Work areas, equipment, and exposed clothing (i.e., boots) covered by dust will be cleaned at the end of every shift using a HEPA-filtered vacuum.
- Wet cleanup may also be used to remove dust.
- Waste material will be placed in a dumpster and will be removed at least weekly. The location and method used to store waste will not allow silica-containing dust to re-enter the workplace.
- Supervisors are responsible for ensuring that work areas are free from dust at the end of each shift.

Worker training for silica dust exposure

- Training will be performed by the employer or the employer's designate.
- Records of attendance, dates of training, and training material will be documented and retained.
- Additional training or reference material on silica dust exposure will be made available to employees upon request.

- Training topics:
  - Health hazards of silica dust exposure
  - Engineering controls and safe work practices used to protect workers
  - The importance of proper equipment control and maintenance
  - Housekeeping procedures
  - Proper use of respirators and the respirator program
  - Personal hygiene procedures to reduce exposures
  - The details of the exposure control program for silica dust

Health surveillance

- Workers who are regularly exposed to silica dust will receive regular medical examinations from their family physicians. These examinations may include lung function testing and chest X-rays.
- Workers will report any symptoms of silica dust exposure to the employer and WorkSafeBC for tracking and investigation.

Annual review

- This ECP will be reviewed at least annually and updated as necessary by the employer, in consultation with the workplace health and safety committee or the worker health and safety representative.

Exposure Control Plan for Manual Removal/Sanding of Building Materials Containing Lead Paint by Non-Powered Hand Tools

Removing lead-containing paint without proper controls can generate lead dust. Lead enters the body when the dust is inhaled or ingested (swallowed). Once it is in the bloodstream, lead can be carried throughout the body. Lead exposure can cause a number of health effects, including weakness, headaches, stomach cramps, muscle and joint pain, and memory problems

Company information

- City of Nelson
- 80 Lakeside Drive, Nelson, BC V1L 5S4
- Peter Sinstadt – 250-352-8218

Worksite information

- 610 Railway Street, Nelson, BC

Health hazards from lead exposure

- Lead interferes with many body processes and is poisonous to most organs and tissues, including the bones, intestines, kidneys, nervous system, and reproductive organs.
- Acute lead poisoning (high exposure over a short period of time) can cause fatigue, anemia, constipation, and damage to the nervous system.
- Chronic lead poisoning (exposure over a longer period of time) can cause fatigue, joint pain, and weakness.
- Lead poisoning can damage the fetus in pregnant female workers and impair fertility in male workers.
- Workers are exposed to lead when they inhale lead-containing dust, dermal contact, or ingest lead residue from their hands (for example, when eating, chewing gum, or smoking).
- Lead is a suspected human carcinogen and has been shown to cause cancer in laboratory animals.

Purpose and responsibilities

- The City of Nelson has a duty to protect workers from lead exposure during the removal of lead-containing paints and coatings. Studies show that these operations generate airborne lead dust well in excess of safe levels. Effective controls are available to protect workers from harmful exposure.
- A combination of control measures will be required to achieve this objective. We commit to being diligent in our efforts to select the most effective control technologies available, and to ensure that the best practices, as described in this exposure control plan (ECP), are followed at our worksites.
- The work procedures we establish will protect not only our workers but also any other workers on-site who are not involved in these operations.

The employer is responsible for the following:

- Ensuring that the materials (for example, tools, equipment, personal protective equipment [PPE]), and other resources (for example, worker training) are readily available to fully implement and maintain this ECP.

- Ensuring that supervisors and workers are educated in the hazards of lead exposure and trained to work safely during the removal of lead-containing paints and coatings.
- Ensuring that workers follow the requirements of the Occupational Health and Safety Regulation (OHSR) and the *Workers Compensation Act.*
- Maintaining written records of training (for example, proper use of respirators), fit-test results, crew talks, and inspections (for example, of equipment).
- Conducting an annual review (or more often if conditions change) of the effectiveness of the ECP. This includes a review of available control technologies to ensure that these are selected and used when practicable.
- Coordinating work with the prime contractor and other employers to ensure a safe work environment.
- Initiating immediate investigations into incidents/accidents and reporting these to WorkSafeBC.

Supervisors are responsible for the following:

- Providing adequate instruction to workers on the hazards of lead exposure.
- Selecting and implementing the appropriate control measures.
- Ensuring that workers using respirators have been properly trained and fit-tested, and that the results are recorded.
- Ensuring that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls and wear the necessary PPE.
- Immediately correcting unsafe acts and conditions.

Workers are responsible for the following:

- Participating in all required health and safety education and training.
- Using the assigned protective equipment in an effective and safe manner.
- Following established work procedures as directed by the supervisor.
- Reporting any unsafe conditions or acts to the supervisor.
- Reporting to the employer any exposure incidents or any signs or symptoms of lead illness.

Hazard identification and risk assessment

- Lead-containing paints can contain anywhere from 0.009% to 50% lead by weight. Studies have shown that removal of paint with a lead content as low as 0.06% can generate airborne concentrations of lead that approach the occupational exposure limit.
- Removing lead-containing paint without the use of proper controls and PPE can expose workers to levels of airborne lead dust that are above the exposure limit listed in the Regulation.
- Unprotected workers or other persons may be exposed to the hazards of lead. All lead work locations will be enclosed by barriers or barrier tape and identified with signs or placards.

Exposure limit

- The occupational exposure limit (OEL) for inorganic lead is 0.05 milligrams per cubic metre (mg/m^3).
- Because lead is a suspected human carcinogen and linked with cancer in animals, workplace exposures must be reduced to levels that are As Low As Reasonably Achievable (ALARA) below the OEL.

Lead dust controls

- The Regulation requires employers to select lead dust controls based on the following hierarchy:
  1. Engineering controls (for example, barriers, enclosures, general ventilation, local exhaust ventilation)
  2. Administrative controls (for example, wash stations, separate eating and changing areas, and limiting the time workers are exposed to lead)
  3. Personal protective equipment (such as respirators and disposable coveralls)
- Respirators will be used in conjunction with other controls to reduce worker exposure to lead, unless air monitoring information suggests otherwise.
- A DOP-tested and –certified HEPA vacuum will be used for cleanup and decontamination.

Acceptable control methods for removing lead-containing paint

- The work methods in the following table are acceptable, provided that the respirator selection, dust suppression, and other controls are adhered to.
- The following control options will be used to eliminate or reduce the risk to workers from the hazards of lead dust exposure, unless air monitoring information suggests otherwise.

Work activity	Dust suppression	Other controls	Respirator type
Manual removals using hand tools on ~690 ft^2 of wood, metals, masonry	• Peeling/cracking/flaking paint will be misted with water before disturbing. • Debris will be misted before sweeping or vacuuming. • A HEPA vacuum will be used to remove debris.	• Disposable drop sheets will be placed below the work area. • Barriers (for example, a tape barrier) will be installed to restrict access to the work area. • Signs will be posted at every entrance to the work area. • Workers will use disposable nitrile gloves. • Plaster will be double-bagged and placed in lined bin. • Washdown facility.	• NIOSH-approved single-use N95, N99, or P100 respirator, or Half- or full-facepiece elastomeric respirator equipped with P100 HEPA cartridges

Safe work planning

- Establish a barrier or partial enclosure around the work zone to restrict access by unprotected workers during low risk work.
- Inspect all dust control equipment and tools to make sure they are in good working order.
- Use and maintain all tools and equipment as specified by the manufacturer. For example, test the effectiveness of HEPA filters using dioctyl phthalate (DOP) testing or similar means at least annually, and any time a HEPA filter is replaced in a vacuum cleaner or ventilation system.
- When working on a multiple-employer site, provide the general contractor with a copy of the lead exposure control plan and safe work procedures. Review the procedures and work schedule with the general contractor to determine whether additional measures are required to reduce worker exposure to lead.
- Ensure that workers inspect their respirators before start-up.

Respiratory protective equipment

- Each worker will be fit-tested if a respirator is required.
- If a worker is required to wear a respirator that requires an effective seal with the face for proper functioning, the worker must be clean-shaven where the respirator seals with the face.
- When the worker notices a notable resistance to breathing, the respirator filters must be replaced.
- Respirators will be used, cleaned, and stored in accordance with the respiratory protection program.

Other personal protective equipment and hygiene

- Workers should change from street clothes to work clothes (including footwear) at the beginning of their work shift.
- Street clothes should be kept separate from work clothes.
- Washing (and shower, if required) facilities should be located between "clean" changing areas and "dirty" work areas.
- Workers should remove contaminated outer work clothing and thoroughly wash their hands and faces before eating, drinking, or smoking.
- No eating, drinking, smoking, chewing gum, or nail biting should be allowed in the work area.
- No food, gum, cigarettes, or other personal items should be stored in the work area.
- Coffee and lunch breaks should be taken in a clean area separate from the work area.
- Workers should remove all work clothes and shoes at the end of the work day and leave them at work.
- Workers should wash (or shower) before leaving work to ensure that any potential contamination is removed before they go home.
- Workers should not take any contaminated items home, as this may expose family members to lead.

Housekeeping procedures

- Dry sweeping and the use of compressed air are prohibited for removing dust and debris containing lead. Work areas, equipment, and exposed clothing (i.e., boots) covered by dust will be cleaned at the end of every shift using a HEPA-filtered vacuum.
- Wet cleanup may also be used to remove dust.

- Waste material will be placed in a dumpster and will be removed at least weekly. The location and method used to store waste will not allow lead-containing dust to re-enter the workplace.
- Supervisors are responsible for ensuring that work areas are free from dust at the end of each shift.

Worker training for lead exposure

- Training will be performed by the employer or the employer's designate.
- Records of attendance, dates of training, and training material will be documented and retained.
- Additional training or reference material on lead exposure will be made available to employees upon request.
- Training topics:
  - Health hazards of lead exposure
  - Engineering controls and safe work practices used to protect workers
  - The importance of proper equipment control and maintenance
  - Housekeeping procedures
  - Proper use of respirators and the respirator program
  - Personal hygiene procedures to reduce exposures
  - The details of the exposure control program for lead

Health surveillance

- A health monitoring program (including the collection and analysis of blood samples) will be implemented, under the supervision of an occupational physician, prior to project commencement and following its completion for moderate-high risk and/or high-risk work.

Annual review

- This ECP will be reviewed at least annually and updated as necessary by the employer, in consultation with the workplace health and safety committee or the worker health and safety representative.