



COWICHAN VALLEY REGIONAL DISTRICT

REQUEST FOR QUOTATIONS

NO. CS-KPR-003-17

**DOMESTIC HOT WATER STORAGE FOR KERRY PARK RECREATION
CENTRE**

Quotes will be received on or before 2:00 P.M. local time
Thursday, June 8, 2017

COWICHAN VALLEY REGIONAL DISTRICT
175 INGRAM STREET
DUNCAN, BRITISH COLUMBIA
V9L 1N8
www.cvrld.bc.ca

INTRODUCTION

Invitation

This Request for Quotations ("the RFQ") issued by The Cowichan Valley Regional District ("the CVRD") is an invitation to submit non-binding offers for the provision of **Kerry Park Recreation Centre Domestic Hot Water Storage** as further described in Appendix A for the Rates established in Appendix B.

There will be a non-mandatory site meeting on Tuesday May 30, 2017, starting at 10:00 am at Kerry Park Recreation Centre at 1035 Shawnigan-Mill Bay Rd., Mill Bay, BC V0R 2P0. Respondents are to meet at the front doors of the arena.

Submission Instructions

Quotations must be sent by email to the RFQ Contact at the email address set out below or delivered to the following address:

Cowichan Valley Regional District
175 Ingram Street
DUNCAN, BC V9L 1N8

Attention: Anthony Jeffery, Procurement Officer
Email: purchasing@cprd.bc.ca

The complete quotation must be received in the inbox of the RFQ Contact's email address or delivered to the above address by the Submission Deadline. Quotations received after the Submission Deadline will not be considered.

It is the intention of the CVRD to enter into a contract with one (1) legal entity.

RFQ Timetable

Event	Date
Release of RFQ	May 24, 2017
Site Meeting	May 30, 2017 @11:00 a.m.
Deadline for Questions	June 2, 2017
Deadline for Issuing Addenda	June 5, 2017
Submission Deadline	No Later Than 02:00 p.m. Local Time on June 8, 2017

The RFQ timetable is tentative only, and may be changed by the CVRD at any time prior to the Submission Deadline.

Evaluations of Quotations

The CVRD will conduct the evaluation of quotations in the following two stages:

Stage I – Mandatory Requirements

The mandatory requirements for this RFQ are each quotation **must include** a Submission Form (Appendix B) completed and signed by an authorized representative of the respondent. Subject to the Terms of Reference and Governing Law (Appendix C), those quotations that do not satisfy the mandatory requirements as of the Submission Deadline will be disqualified and will not be evaluated further.

Stage II – Rated Criteria

Stage II will consist of a scoring of quotations on the basis of the following rated criteria:

Criteria Category	Points
D.1 Qualifications & Experience	30
D.2 References	20
D.3 Fee Proposal	50
Total Points	100

In addition to submitting the Submission Form, respondents should include the following information:

D.1 Experience and Qualifications – Total Points = 30 Points

Each proponent should provide the following in its proposal:

- (a) a brief description of the proponent;
- (b) a description of the goods and services the respondent has previously delivered and/or is currently delivering, with an emphasis on experience relevant to the Deliverables;
- (c) the roles and responsibilities of the proponent and any of its agents, employees and sub-contractors who will be involved in providing the Deliverables, together with the identity of those who will be performing those roles and their relevant respective expertise;
- (d) a description of how the proponent will provide the Deliverables, which should include a work plan and incorporate an organizational chart indicating how the proponent intends to structure its working relationship with the CVRD.

D.2 References – Total Points = 20 Points

Each proponent is requested to provide three (3) references from clients who have obtained goods or services similar to those requested in this RFQ from the proponent in the last three years.

D.3 Pricing – Total Points = 50 Points

Pricing will be scored based on a relative pricing formula. Each respondent will receive a percentage of the total possible points allocated to price relative to the lowest bid price, based on the following formula:

$$\text{lowest price} \div \text{respondent's price} \times \text{total available points} = \text{respondent's score}$$

Selection of Top-Ranked Respondent

Subject to the Terms of Reference and Governing Law (Appendix C), the top-ranked respondent as established under the evaluation will be selected to enter into a contract for the provision of the Deliverables. The respondent selected pursuant to this RFQ process will be informed in writing. Respondents not selected will also be informed in writing. The selected respondent will be expected to enter into a contract within the timeframe specified in the selection notice. Failure to do so may, among other things, result in the disqualification of the respondent and the selection of another respondent or the cancellation of the RFQ.

APPENDIX A – RFQ PARTICULARS

The Deliverables

The CVRD is requesting quotes to remove the existing 500 gallon hot water storage tank and redundant piping, ducting and equipment, and install two (2) hot water storage tanks, complete with all required piping, wiring, controls and start up commissioning as per the Mechanical specifications and drawings shown in Appendix D, for Kerry Park Recreation Centre located at 1035 Shawnigan Mill Bay Road, Mill Bay BC V0R 2P0.

The construction period for the removal and installation of the two (2) hot water storage tanks and equipment at the Kerry Park Recreation Centre is between July 1, 2017 and July 31, 2017. The new hot water storage tanks must be completed and properly operating by August 1, 2017.

Respondents are to provide suggested work schedules between the above mentioned construction period dates, taking into account the owner prefers a schedule that will have the work done as quickly as possible with the least amount of disruption on the facility operations. The owner will work with the successful respondent to finalize the work schedules at Kerry Park Recreation Centre.

Material Disclosures

Drawings and reports shall become the property of the CVRD and shall be provided in dwp. and word files.

Contract award of this RFQ is subject to approval of the CVRD Regional Board and funding being available for the Kerry Park Recreation Centre Domestic Hot Water Storage upgrade project. After acceptance by the CVRD, a written acceptance will be issued to the successful Bidder.

Please be aware that this site may be shared by more than one contractor. The successful respondent will not have exclusive use of the site.

The successful proponent will be required to produce a certificate of insurance \$5,000,000 liability insurance, and adding the Cowichan Valley Regional District as additional insured.

The CVRD will provide course of construction insurance, while the properties at Kerry Park Recreation Centre is in course of construction.

The scope of work is detailed and specified in the Appendix D (Mechanical Specifications) for Kerry Park Recreation Centre. The successful proponent is responsible for applying for all permits and licenses to carry out all their work.

The successful proponent will be required to provide a WorkSafeBC Clearance letter.

The successful proponent will be considered as the Prime Contractor for the hot water storage upgrade work on this project.

The successful proponent shall commence work on site no later than three (3) working days after the Owner's instruction to proceed.

APPENDIX B – SUBMISSION FORM

Respondent Information

Please fill out the following form and name one person, to be the contact for this RFQ response and for any clarifications or amendments that might be necessary.	
Full Legal Name of Respondent:	
Any other relevant name under which the respondent carries on business is:	
Street Address:	
City, Province/State:	
Postal Code:	
Phone Number:	
Fax Number:	
Company Website (if any):	
RFQ Contact Person and Title:	
RFQ Contact Phone:	
RFQ Contact Facsimile:	
RFQ Contact E-mail:	

Acknowledgement of Terms of Reference and Governing Law

The respondent acknowledges that this RFQ process will be governed by the specific Terms of Reference and Governing Law set out in this RFQ and that, among other things, the Terms of Reference and Governing Law confirm that this procurement process does not constitute a formal legally binding bidding process and that there will be no legal relationship or obligations created until the CVRD accepts the respondent's offer in writing.

Ability to Provide Deliverables

The respondent has carefully examined this RFQ and has a clear and comprehensive knowledge of the Deliverables required. The respondent represents and warrants its ability to provide the Deliverables in accordance with the pricing set out below.

Addenda

The respondent is deemed to have read and accepted all addenda issued by the CVRD prior to the Deadline for Issuing Addenda. The onus is on respondents to make any necessary amendments to their quotations based on the addenda. The respondent is requested to confirm that it has received all addenda by listing the addenda numbers, or if no addenda were issued by writing the word "None", on the following line: _____. Respondents who fail to complete this section will be deemed to have received all posted addenda.

Non-Binding Pricing

Respondents should provide pricing (in Canadian dollars) for the Deliverables described hereunder:

Removal of existing 500 gallon hot water storage tank and redundant piping, ducting and equipment, and installation of two (2) hot water storage tanks, complete with all required piping, wiring, controls and start up commissioning (as per attached specifications) at Kerry Park Recreation Centre, 1035 Shawnigan Mill Bay Road, Mill Bay BC V0R 2P0.

Total Price shall include all labour, equipment, permits, fees, and materials required to complete the proposed work and all applicable taxes.

Price inclusive of all applicable taxes excluding GST: \$_____

GST: \$_____

Total Price: \$_____

Conflict of Interest

“**Conflict of Interest**” includes, but is not limited to, any situation or circumstance where:

- (a) in relation to the bidding process, the respondent has an unfair advantage or engages in conduct, directly or indirectly, that may give it an unfair advantage, including but not limited to (i) having or having access to information in the preparation of its quotation that is confidential and not available to other respondents; (ii) communicating with any person with a view to influencing preferred treatment in the RFQ process; or (iii) engaging in conduct that compromises or could be seen to compromise the integrity of the open and competitive RFQ process and render that process non-competitive and unfair; or
- (b) in relation to the performance of its contractual obligations contemplated in the contract that is the subject of this procurement, the respondent's other commitments, relationships or financial interests (i) could or could be seen to exercise an improper influence over the objective, unbiased and impartial exercise of its independent judgement; or (ii) could or could be seen to compromise, impair or be incompatible with the effective performance of its contractual obligations.

If the box below is left blank, the respondent will be deemed to declare that: (1) there was no Conflict of Interest in preparing its quotation; and (2) there is no foreseeable Conflict of Interest in performing the contractual obligations contemplated in the RFQ.

Otherwise, if the statement below applies, check the box.

- ☐ The respondent declares that there is an actual or potential Conflict of Interest relating to the preparation of its quotation, and/or the respondent foresees an actual or potential Conflict of Interest in performing the contractual obligations contemplated in the RFQ.

If the respondent declares an actual or potential Conflict of Interest by marking the box above, the respondent must state on a separate sheet details of the actual or potential Conflict of Interest.

Signature of Witness:

Signature of Respondent Representative:

Name of Witness:

Name and Title:

Date of Signature:

I have authority to bind the Respondent.

APPENDIX C - TERMS OF REFERENCE AND GOVERNING LAW

In responding to this RFQ, each respondent must submit a completed and signed Submission Form (Appendix B) that, among other things, acknowledges its acceptance of the following RFQ Terms of Reference and Governing Law:

- (a) This RFQ process is not intended to create a formal, legally binding bidding process and shall not give rise to the legal rights or duties applied to a formal Contract A binding bidding process or any other legal obligations arising out of any tendering process contract or collateral contract, and instead shall be governed by the common law applicable to direct commercial negotiations.
- (b) No legal obligation regarding the procurement of any good or service shall be created until the CVRD and the selected respondent have entered into a written contract for the Deliverables.
- (c) Neither party shall have the right to make any claims (in contract, tort, or otherwise) against the other with respect to the award of a contract, failure to award a contract or a decision of the respondent to withdraw its quotation.
- (d) The CVRD may cancel this RFQ process at any time.
- (e) Procurements falling within the scope of Chapter 5 of the Agreement on Internal Trade and/or the New West Partnership Trade Agreement are subject to those trade agreements but that the rights and obligations of the parties will be governed by the specific terms of this RFQ.
- (f) The respondent consents to the collection and use by the CVRD of the information as contemplated under this RFQ for the uses contemplated under this RFQ.
- (g) The respondent will bear its own costs associated with, or incurred in, the preparation and presentation of its quotation, including, if applicable, costs incurred for interviews or demonstrations.
- (h) Respondents may direct questions or seek additional information in writing by e-mail to the RFQ Contact on or before the Deadline for Questions. The CVRD is under no obligation to provide additional information but may do so at its sole discretion. It is the responsibility of the respondent to seek clarification from the RFQ Contact on any matter it considers to be unclear. The CVRD is not responsible for any misunderstanding on the part of the respondent concerning this RFQ or its process.
- (i) This RFQ may be amended only by addendum issued in accordance with this section. If the CVRD, for any reason, determines that it is necessary to provide additional information relating to this RFQ, such information will be communicated to all respondents by addendum. Each addendum forms an integral part of this RFQ and may contain important information, including significant changes to this RFQ. Respondents are responsible for obtaining all addenda issued by the CVRD. In the Submission Form (Appendix B), respondents should confirm their receipt of all addenda by setting out the number of each addendum in the space provided.
- (j) When evaluating quotations, the CVRD may request further information from the respondents or third parties in order to verify, clarify or supplement the information provided in the respondent's quotation, and the CVRD may revisit and re-evaluate the respondent's quotation or ranking on the basis of any such information.
- (k) The CVRD may consider the respondent's past performance on previous contracts or any other information considered relevant by the CVRD when determining the acceptability of a respondent.

- (l) The CVRD may disqualify a respondent for any conduct, situation or circumstance that constitutes a Conflict of Interest, as solely determined by the CVRD. "Conflict of Interest" shall have the meaning ascribed to it in the Submission Form (Appendix B).
- (m) Respondents shall not engage in any illegal business practices, including such activities as bid-rigging, price-fixing, bribery, fraud or collusion. Respondents shall not engage in any unethical conduct, including lobbying or other inappropriate communications; offering gifts to elected officials, employees, officers or other representatives of the CVRD; deceitfulness; submitting quotations containing misrepresentations or other misleading or inaccurate information; or any other conduct that compromises or may be seen to compromise the competitive process.
- (n) The CVRD may elect not to consider a respondent who engages in conduct prohibited by this RFQ or whose quotation contains misrepresentations or any other inaccurate, misleading or incomplete information.
- (o) The CVRD may prohibit a respondent from participating in a procurement process based on poor past performance or inappropriate conduct in a prior procurement process, including but not limited to (i) illegal and unethical conduct; (ii) the submission of quotations containing misrepresentations or any other inaccurate, misleading or incomplete information, (iii) the refusal of the respondent to honour submitted pricing or other commitments, or (iv) any conduct, situation or circumstance determined by the CVRD, in its sole and absolute discretion, to have constituted an undisclosed Conflict of Interest.
- (p) Respondents may request a debriefing after receipt of a notification of the outcome of the procurement process. All requests must be made in writing to the RFQ Contact and must be made within sixty (60) days of such notification. The intent of the debriefing information session is to aid the respondent in presenting a better submission in response to subsequent procurement opportunities. Any debriefing provided is not for the purpose of providing an opportunity to challenge the procurement process or its outcome.
- (q) The CVRD makes no guarantee of the value or volume of work to be assigned to the successful respondent. The contract with the selected respondent will not be an exclusive contract for the provision of the described Deliverables. The CVRD may contract with others for goods and services the same as or similar to the Deliverables or may obtain such goods and services internally.
- (r) These terms (i) are intended to be interpreted broadly and independently (with no particular provision intended to limit the scope of any other provision); (ii) are non-exhaustive and shall not be construed as intending to limit the pre-existing rights of the parties to engage in pre-contractual discussions in accordance with the common law governing direct commercial negotiations; and (iii) are to be governed by and construed in accordance with the laws of the province of British Columbia and the federal laws of Canada applicable therein.



APPENDIX D

RFQ NO. CS-KPR-003-17

MECHANICAL SPECIFICATIONS

FOR: KERRY PARK RECREATION CENTRE

Domestic Hot Water Storage

PREPARED BY:

WSP Canada Inc.

FOR:

COWICHAN VALLEY REGIONAL DISTRICT

May 2017

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DRAWING INDEX WITH DRAWINGS ON PAGES 13, 14 AND 15.

DRAWING	DESCRIPTION	REV.	DATE
M-001 (PAGE 13)	LEGEND, DRAWING LIST & SCHEMATICS	2	MAY 12, 2017
M-101 (PAGE 14)	BOILER ROOM – DEMO & NEW	2	MAY 12, 2017
M-102 (PAGE 15)	SPECIFICATION	2	MAY 12, 2017

1. GENERAL

1.1 DEFINITIONS

- .1 Provide means supply and install.
- .2 Work means material and labour.
- .3 Consultant means WSP CANADA Inc.

1.2 GENERAL SCOPE

- .1 Provide the work indicated in the contract documents and as required to provide complete, tested and fully operational systems including all work not normally indicated but necessary for a complete and operational installation.
- .2 The Contractor is expected to be experienced, competent, and knowledgeable about the trades and applicable codes, ordinances and industry standards, shall perform the work accordingly, on schedule, and fully coordinated with all other trades.
- .3 The Contract Documents for this Division are an integral part of the complete contract documents for the project and will be interpreted in conjunction with all other Divisions.
- .4 Within ten [10] days of award of the Contract provide to the Consultant a price breakdown to the Consultant's satisfaction.

1.3 CODES, REGULATIONS AND STANDARDS

- .1 The work of this Section shall conform to the edition of codes, regulations and standards in effect at the time of award of Contract, and conform to the requirements of the Authorities Having Jurisdiction.

1.4 LIABILITY

- .1 Be responsible for layout of work and for any damage caused by improper execution of work.
- .2 Be responsible for condition of materials and equipment supplied and protect all work until work completed and accepted.

1.5 PERMITS AND FEES

- .1 Obtain all required permits and pay all fees including service connection fees as applicable to the work of this Section. Comply with all Provincial, Municipal and other legal regulations and bylaws applicable to the work.
- .2 Where Authorities Having Jurisdiction provide inspection, arrange for their inspection of all work. On completion of the work, furnish final unconditional certificates of approval by the inspecting authorities.

1.6 DRAWINGS AND MEASUREMENTS

- .1 Except where precisely indicated, the contract documents are diagrammatic and generally indicate the scope of work and general arrangement and establish minimum quality and performance requirements. Where there are conflicting requirements the Contractor shall allow for and provide the better quality and/or greater quantity unless the conflicting requirements are interpreted otherwise in writing by the Consultant.

1.7 SITE VISIT

- .1 This project involves renovations to an existing building. Proponents should visit the site and examine all local and existing conditions on which the work is dependent. No consideration will be granted for any misunderstanding of work to be done where the necessary information could have reasonably been obtained by an examination of the site.

1.8 WARRANTY

- .1 Provide the Owner with a written warranty that the equipment installed and the work performed under this contract will remain in serviceable condition for one (1) year from the date of final acceptance. Warranty shall include parts and labour.

1.9 WORKMANSHIP

- .1 Workmanship shall be in accordance with well-established practice and with standards accepted and recognized by the Consultant and the Trade.
- .2 The Consultant may reject any work not conforming to the Contract Documents or to accepted standards of performance, quietness of operation, finish or appearance.
- .3 Employ only tradesmen with valid Provincial Trade Qualification Certificates to perform only work permitted by their certificates.

1.10 SHOP DRAWINGS

- .1 Shop drawings/product data shall be reviewed, signed and processed as described by the Mechanical Contractors Association of British Columbia.
- .2 Provide an electronic copy or five (5) hard copies of shop drawings of all equipment on the drawings and specifications to the Consultant for review.
- .3 Review or non-review of shop drawings does not alter the requirements of the equipment and materials provided to conform to the specification.

1.11 PRODUCT QUALIFICATION / ALTERNATE MATERIALS AND EQUIPMENT

- .1 The product specified as Standard of Acceptance was used in preparing the design. Submissions may be based on the specified Standard of Acceptance or on any Acceptable Product listed provided that it meets every aspect of the drawings and specifications including efficiency and energy consumption.
- .2 Where other than the specified Standard of Acceptance is supplied, include for the cost of any resulting additional work (both under this Division and other Divisions) and any necessary redesign of installation or structure.
- .3 Addition of manufacturer's names as Acceptable Products will be by addendum only.
- .4 Multiple items of equipment material of the same type shall be of the same manufacturer.
- .5 Install and test all equipment and material in accordance with the detailed instructions and recommendations of the manufacturer.

1.12 ASBESTOS

- .1 All material/products provided shall be free of asbestos.
- .2 If existing asbestos is discovered which will be affected by the work of the Contract, immediately notify the Consultant. All work related to existing asbestos shall be handled in accordance with the requirements of WorkSafeBC (Workers' Compensation Board of British Columbia).

1.13 SEISMIC RESTRAINT

- .1 Provide seismic restraints for the piping and tanks specified in this Section to meet the requirements of the B.C. Building Code, to be in general conformance to SMACNA Guidelines, to keep the equipment in place during a seismic event, to minimize damage to the systems and equipment from a seismic event, to prevent systems and equipment from causing personal injury during a seismic event.
- .2 Arrange and pay for the services of a structural professional engineer registered in British Columbia referred to here as the Seismic Engineer. The Seismic Engineer shall review, seal and sign all submittals required for all components, assemblies, attachments and installation procedures for the seismic restraint of all piping and tanks under this Section. The Seismic Engineer shall provide all necessary direction to the contractor during installation of the seismic restraint installation and submit a statutory declaration that the final seismic restraint installation conforms to the submittal documents sealed by the Seismic Engineer and satisfies all regulatory requirements.
- .3 The Seismic Engineer shall submit Letters of Assurance Schedules S-B and S-C for the seismic restraint to the Consultant.
- .4 The Seismic Engineer shall coordinate attachment to the equipment with the equipment manufacturer to ensure the method and location of attachment of the seismic restraint to the equipment does not compromise the structural integrity of the equipment.
- .5 It is the entire responsibility of equipment manufacturers to design their equipment so that the strength and anchorage of the mounting points and internal components of the equipment exceeds the force level used to restrain and anchor the unit itself to the supporting structure during a seismic event of code design magnitude.

1.14 MISCELLANEOUS METAL

- .1 Be responsible for all miscellaneous steel work relative to this Section of the Specifications, including but not limited to:
 - .1 Support of equipment.
 - .2 Hanging, supporting, anchoring, guiding and related work as it applies to piping, ductwork and mechanical equipment.
 - .3 Earthquake restraint devices.

1.15 COORDINATION

- .1 Examine all contract drawings to verify space and headroom limitations for the required work. Coordinate the work with all trades and modify without changing the design intent to facilitate a satisfactory installation. Make no changes involving extra cost to the Owner without the Consultant's prior written approval.
- .2 Work out jointly all interference problems on the site and coordinate all work before fabricating, or installing any material or equipment. No consideration of payment will be made for additional work due to fabrication or installation of materials before a coordination issue was identified and resolved.

1.16 EQUIPMENT INSTALLATION AND ACCESSIBILITY

- .1 Provide unions and flanges to permit equipment maintenance, disassembly or removal, to minimize disturbance to piping and duct systems and to avoid interfering with building structure or other equipment.
- .2 All work shall be readily accessible for adjustment, operation and maintenance.
- .3 Pipe equipment drains to floor drains.

- .4 Ensure that equipment does not transmit noise or vibration to other parts of the building as a result of poor installation practices.

1.17 PIPE MOUNTED CONTROL EQUIPMENT

- .1 The following automatic control equipment will be supplied by the controls trade but shall be installed by the appropriate trade.
 - .1 Temperature control wells.
 - .2 Pressure tapings.

1.18 EXISTING SERVICES

- .1 Arrange work to avoid shutdowns of existing services. Where shutdowns are unavoidable, obtain the Owner's approval of the schedule of shutdowns.
- .2 Shutdowns of existing services will be carried out by the Owner's maintenance staff.
- .3 To avoid interrupting of existing services, temporary relocations and/or bypasses of piping may be required.
- .4 Before interrupting any services complete all preparatory work as far as reasonably possible and have all necessary materials on site and prefabricated (where practical) and work continuously to keep the length of interruption to a minimum.

1.19 DEMOLITION AND RE-USED EQUIPMENT

- .1 All piping, ducting and equipment, which becomes redundant and is no longer required due to the work shall become the property of the Contractor and shall be completely removed from the site.
- .2 Where existing equipment is being relocated and re-used, check and report on the condition before removal to the Consultant. Any damage by the work of this contract is the responsibility of the Contractor.

1.20 PAINTING AND IDENTIFICATION

- .1 Apply a coat of rust inhibiting primer to all exposed, bare steel provided under this Section.
- .2 Make good any damage to factory finishes on equipment supplied under this Section.
- .3 Piping Identification
 - .1 Each system shall be labelled including directional flow arrows. Obtain from the Consultant the Pipe Identification Schedule.
 - .2 Identification labels may be stencilled or be vinyl cloth (Brady B500) or vinyl film (Brady B946), with adhesive compatible with the surface temperature, or plastic coil.
- .4 Valve Tags
 - .1 Provide valve identification tags appropriately secured. Tags may be of brass, aluminum, metalphoto, laminated plastic or fiberglass, stamped or engraved, 25 mm [1"] minimum diameter.
 - .2 Schedule the valve numbers using a sequential numbering system to the building standard and continuing from the last listed valve. Provide a valve tag list indicating valve number, system, location, normal operating position (open or closed) and the area it serves.

1.21 OPERATION AND MAINTENANCE MANUALS

- .1 Provide one suitably sized 3-ring binder with suitable label with all required materials inside to the Consultants as a draft copy for review. Make all required changes and resubmit the one binder to the Consultant. Repeat until accepted. Then submit three (four) manuals identical to the accepted copy to the Owner. Obtain a receipt and send a copy of the receipt to the Consultant.
- .2 Provide an index and tab each section and the manual shall include:
 - .1 List of local source of supply.
 - .2 Maintenance schedules.
 - .3 Copy of any required approvals, certifications, acceptance by Authorities Having Jurisdiction.
 - .4 All shop drawings.
 - .5 Manufacturer's operating and maintenance literature and wiring and control diagrams.
- .3 Provide the Consultant with a CD or DVD containing an electronic version of the entire accepted manual in an unprotected PDF format, with hierarchical bookmarks for all sections (e.g. Shop Drawings → Plumbing Fixtures → Tanks → T-DHW1). Make all required changes and resubmit to the Consultant. Repeat until accepted. Then submit three [four] CD/DVD's identical to the accepted copy to the Owner. Obtain a receipt and send a copy of the receipt to the Consultant. The CD/DVD shall be identified as follows:
 - .1 CVRD Kerry Park Recreation Centre DHW Replacement.
 - .2 "OPERATION AND MAINTENANCE MANUAL - MECHANICAL".

1.22 RECORD DRAWINGS

- .1 Keep a set of contract prints on site for the sole purpose of keeping an up-to-date, accurate record marked in red of the installation of mechanical services where they vary from the drawings.
- .2 Dimension the locations and inverts of buried or concealed services before they are concealed.
- .3 Submit the drawings to the Consultant. Make noted changes and corrections.
- .4 The Consultant will transfer the provided information to CAD record drawings and submit a printed copy to the Contractor. The Contractor shall add the contracting firm's name and authorized signature and date certifying the drawings as "RECORD DRAWINGS" and return them to the Consultant. The Consultant will submit the CAD record drawings to the Owner.

1.23 DEMONSTRATION AND INSTRUCTION TO OWNER

- .1 Provide certified personnel to demonstrate and provide maintenance instructions for each mechanical system to the Owner's operating staff. Provide adjustments of mechanical equipment and any changes or modification in equipment made under terms of guarantee.
- .2 Finalize demonstration and instructions by obtaining a signed statement from the Owner that the demonstration and instructions have been given satisfactorily.

1.24 SUBSTANTIAL PERFORMANCE

- .1 The work will not be considered to be ready for use or substantially complete until the following requirements have been met:

- .1 All reported deficiencies have been corrected.
 - .2 Operation and Maintenance Manuals completed.
 - .3 Record Drawings ready for review.
 - .4 All demonstrations to the Owner have been completed.
- .2 Work under this Section which is still outstanding when substantial performance is certified will be considered deficient and hold-back will be established to be withheld until Total Performance and will be equal to at least twice the Consultant's cost estimate of completing that work.

2. INSULATION

2.1 GENERAL

- .1 Apply insulation and accessories so that the finished product is smooth and neat and with longitudinal seams concealed from view. Apply insulation, accessories and finishes in accordance with the manufacturer's recommendations.
- .2 Insulation and vapour barrier shall be continuous through all non-rated separations.
- .3 Finish and seal insulation at hangers, supports and other insulation protrusions.
- .4 Where exposed, terminate piping insulation 75 mm [3"] back from all uninsulated fittings for working clearance and around the base of thermometer wells, pressure gauges, flow switches and pressure and control sensors and bevel insulation at 45° and finish with a hard coat insulating cement to match the adjacent insulation.
- .5 Where concealed, terminate piping insulation 75 mm [3"] back from all uninsulated fittings, with heavy coat of vapour barrier coating to secure glass fibres.

2.2 PIPING INSULATION

- .1 Materials:
 - .1 Mineral Fibre - Low and Medium Temperature, vapour barrier jacket. Maximum thermo conductivity: 0.033 W/m-°C at 24°C [0.23 Btu-in/(hr-ft2-°F) at 75°F]:
 - .1 Acceptable Products: Johns Manville Micro Lok Ap-T Plus, Manson Alley K, Owens Corning SSL-II, Partek Paroc 1200 ASJ/SSL.
 - .2 Tape - self-adhesive, aluminum, reinforced, 50 mm [2"] wide
 - .3 Vapour barrier jacket adhesive:
 - .1 Acceptable Products: Childers CP-82, Foster 85-20.
 - .4 PVC Fitting Covers
 - .5 Canvas Jacket:
 - .1 Lain weave cotton, fire retardant..
 - .2 Lagging adhesive: Robsons white lag.
- .2 Scope: Warm/Hot Piping
 - .1 All domestic hot water supply and recirculation piping - 25 mm [1"] thickness
 - .2 Installation:
 - .1 Mineral fibre insulation
 - .2 Spreading staples at 75 mm centres.
 - .3 Tape over all joints and secure with staples

- .4 Fittings - tightly wrapped flexible insulation to full thickness with PVC fitting cover
- .5 Valves, Strainers - fitted pipe insulation with drains, blowoff plugs and caps uninsulated
- .6 Flanges, mechanical joints - oversized pipe insulation overlapping adjoining insulation at least 75 mm [3"]
- .7 Thermocanvas jacket finish
- .3 Scope: Cold Piping
 - .1 All domestic cold water piping -
 - .2 Installation:
 - .1 The insulation shall include provision of a continuous vapour barrier.
 - .2 Mineral fibre insulation
 - .3 Spreading staples at 75 mm centres.
 - .4 Tape over all joints with vapour-barrier adhesive and staples
 - .5 Fittings - tightly wrapped flexible insulation to full thickness with PVC fitting cover
 - .6 Valves, Strainers - fitted pipe insulation with drains, blowoff plugs and caps uninsulated
 - .7 Flanges, mechanical joints - oversized pipe insulation overlapping adjoining insulation at least 75 mm [3"]
 - .8 Thermocanvas jacket finish.

3. PLUMBING SYSTEMS

3.1 GENERAL

- .1 All work and equipment shall be in accordance with the B.C. Plumbing Code and the Authorities Having Jurisdiction.
- .2 Tests shall be as follows:
 - .1 Domestic water - hydraulic, system station pressure for 8 hours.

3.2 PIPING, VALVES AND FITTINGS

- .1 Water Piping
 - .1 Type 'L' copper pipe above ground with cast brass or wrought copper fittings 95/5 Sn/Sb solder.
- .2 Hangers and Supports: Cadmium plated hanger rods. For steel or cast iron pipe, Grinnell Fig. 260. For copper pipe, Grinnell Fig. CT-65 (copper plated) or Grinnell Fig. 260 epoxy coated
- .3 Install dielectric couplings at copper piping connections to plumbing equipment of dissimilar material.
- .4 Valves:
 - .1 Sweat ends - Acceptable Products: Toyo 5049A, Apollo, Crane, Kitz, Neuman-Hattersley, Nibco, Watts, Worcester.
 - .2 Threaded ends - Acceptable Products: Toyo 5044A, Apollo-70 Series, Crane 93-TF, Grinnell 3700 full port, Kitz 58, Neuman-Hattersley 1969AT, Nibco T-580-BR, Watts B-6000, Worcester 4211-RT.

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- .5 Strainers: Bronze equal to Crane 9881-1/2. Acceptable Manufacturers: Toyo, Jenkins.
- .6 Pressure Gauges: Weiss - Bourdon tube type. Cock and snubber. 100 mm [4"] minimum diameter gauge.
- .7 Domestic Hot Water Storage Tanks
 - .1 Refer to Equipment Schedule on drawing M-001.
- .8 Domestic Hot Water Expansion Tank
 - .1 Refer to Equipment Schedule on drawing M-001.

4. CONTROLS

4.1 GENERAL

- .1 The existing controls system is manufactured by Reliable Controls and provided by Foster Air Conditioning, Houle Electric or Kerr Controls using competent personnel directly and regularly employed by that company.

4.2 ELECTRICAL COMPONENTS, WIRING AND CONDUIT

- .1 By Control Contractor:
 - .1 All new control system components to make a complete and operable system.
 - .2 Control wiring and metallic conduit for mechanical system controls.
 - .3 Supply, installation and connection of all electric control items.
- .2 Carrier System:
 - .1 All wiring in mechanical service rooms, where exposed to view and all 120 volt wiring shall be run in EMT conduit except the final 900mm [36"] of wiring to all operators and to all sensors subject to vibration shall be run in flexible metallic conduit.
 - .2 Provide steel fittings with nylon throats for all conduit connections.
 - .3 Identify each wire and cable at every termination point.

4.3 EQUIPMENT SUPPLIED FOR INSTALLATION UNDER OTHER SECTIONS

- .1 Hand over sensor wells to the appropriate trade sections for installation.
- .2 The Controls Contractor shall be responsible for arranging, coordinating and supervising the installation of the above devices in a suitable manner and readily accessible location.

4.4 GRAPHICS, CALIBRATION AND DEMONSTRATION

- .1 Set up and calibrate DHW system sensors during the initial start-up of the systems and check, recalibrate and readjust and debug operation as necessary.
- .2 Update the existing system graphics to incorporate the DHW system modifications and the controls additions and modifications.
- .3 Demonstrate the controls system to the satisfaction of the Consultant and the Owner.

4.5 PRODUCTS

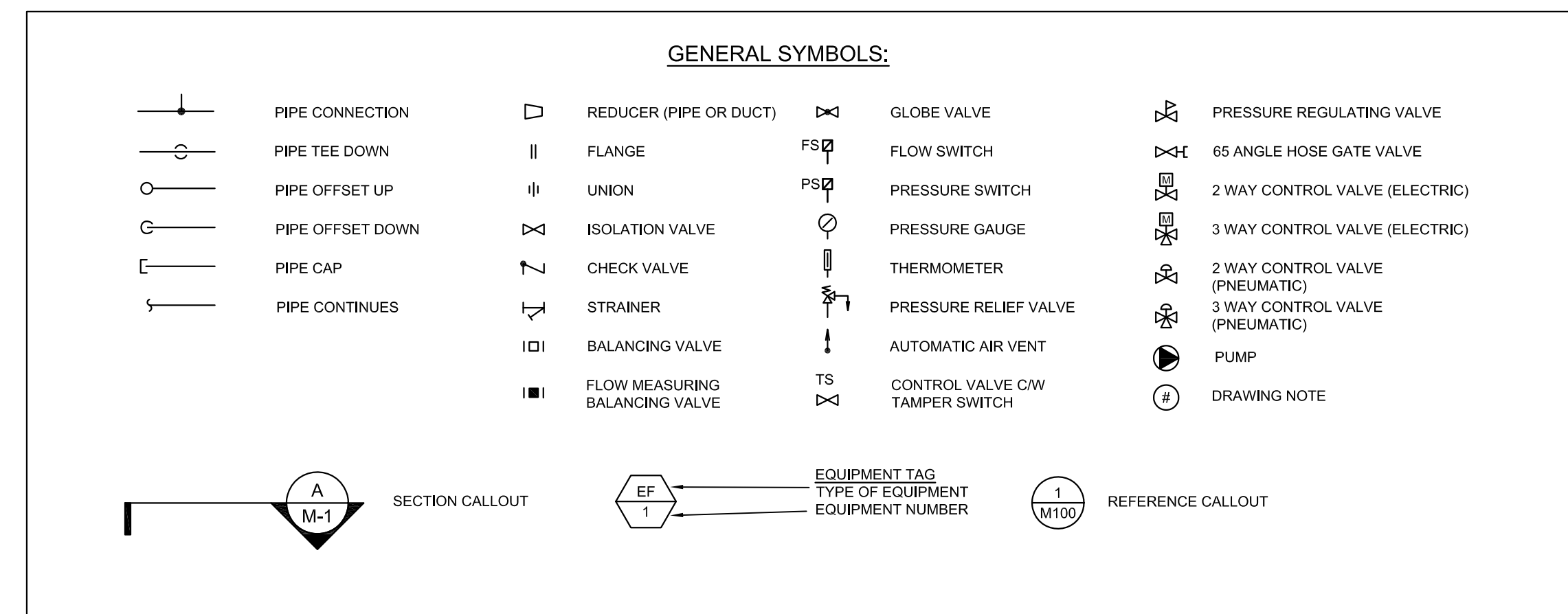
- .1 Installation:

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













- .1 All equipment shall be installed according to manufacturers' published instructions.
- .2 All sensors shall be stabilized to such a level as to permit on-the-job installations that will require minimum field adjustments or calibration.
- .3 Install labels on all sensors and actuators identifying the point name.

4.6 SEQUENCE OF OPERATION

- .1 Domestic Hot Water Heating
 - .1 Operate the domestic hot water heat exchanger circulation pump P-DHW to maintain the domestic hot water tanks setpoint temperature.
 - .2 On a call for DHW heat, operate the Boiler(s) at high temperature.
 - .3 Operate the domestic hot water recirculation pump P-DHWR on a schedule advised by the owner.
 - .4 Monitor the common DHW tank outlet temperature.
 - .5 Monitor the common DHW tank return temperature to the Heat Exchanger.

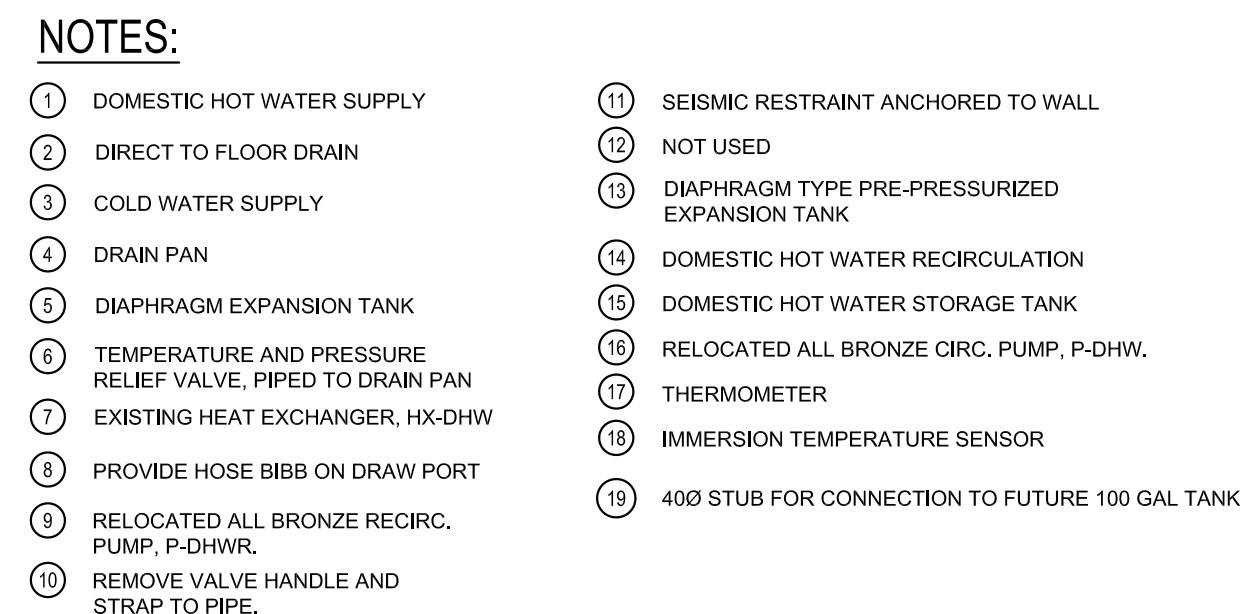



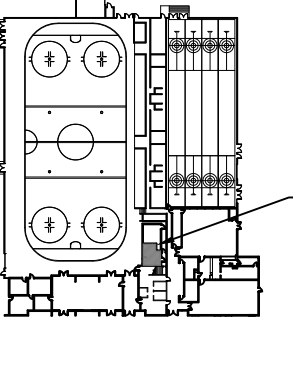
TANK SCHEDULE											
TAG	SERVICE	TYPE	ORIENTATION	VOLUME L / Us gal	DIMENSIONS mm	TOP TAPPINGS # - mm	FRONT TAPPINGS - mm	MAX. WORKING PRESSURE MPa / psi	HEAT	MANUF. MODEL NO.	NOTES
T-DHW1	DOMESTIC HOT WATER	STORAGE	VERTICAL	760 / 200	ØL:180 DIA:815	1- 50	TOP: 1- 25 MID: 2- 50 REAR: 2- 20	1035 / 150	NONE	BRADSHAW WHITE M3-F-ST2005A	1
T-DHW2	DOMESTIC HOT WATER	STORAGE	VERTICAL	760 / 200	ØL:180 DIA:815	1- 50	TOP: 1- 25 MID: 2- 50 REAR: 2- 20	1035 / 150	NONE	BRADSHAW WHITE M3-F-ST2005A	
ET-DHW	DOMESTIC WATER EXPANSION	DIAPHRAGM	VERTICAL	76 / 20	ØL: 393 DIA: 891	NONE	BOTTOM: 1-25	1035 / 150	NONE	AMTROL -ST-42V	1

<u>PLUMBING LEGEND:</u>		<u>ABBREVIATIONS:</u>	
	HOSE BIBB	C	COLD WATER
	FLOOR DRAIN	CB	CATCH BASIN
	HUB DRAIN	CI	CAST IRON
	AREA DRAIN	FD	FLOOR DRAIN
	P-TRAP (UNDER SINK)	H	HOT WATER
	P-TRAP (UNDER FLOOR)	HWT	HOT WATER TANK
	EXISTING PLUMBING PIPE TO BE REMOVED/RESIZED AS INDICATED	HB	HOSE BIBB
	COLD WATER	HD	HUB DRAIN
	HOT WATER	L or LB	LAVATORY BASIN
	HOT WATER RECIRCULATION	R	HOT WATER RECIRCULATION
	SANITARY PIPING UNDER FLOOR	RE	REMOVE EXISTING
	SANITARY PIPING ABOVE FLOOR	SAN	SANITARY PIPING
	PLUMBING VENT	SS	STAINLESS STEEL
	VENT TO ROOF		

<u>GENERAL ABBREVIATIONS:</u>			
AD	ACCESS DOOR	NTS	NOT TO SCALE
AP	ACCESS PANEL	Re	REMOVE EXISTING
AFF	ABOVE FINISHED FLOOR	R	RELOCATED ITEM
CTE	CONNECT TO EXISTING	ReRe	REMOVE AND RELOCATE
N	NEW ITEM	T.R.	TO REMAIN
NIC	NOT IN CONTRACT	U.O.N.	UNLESS OTHERWISE NOTED

MECHANICAL DRAWING LIST		
DRAWING NO.	DRAWING NAME	SCALE
M-001	LEGEND, DRAWING LIST & SCHEDULES	N/A
M-101	MAIN FLOOR MECHANICAL - DEMO & NEW	1:100
M-102	SPECIFICATION	N/A



 <div>301-3600 UPTOWN BOULEVARD VICTORIA (BRITISH COLUMBIA) CANADA V8Z 0G9 TEL.: 250-384-5510 FAX: 250-386-2844 WWW.WSPGROUP.COM</div>																																						
CONSULTANT - SUB-CONSULTANT:																																						
SEAL:																																						
CLIENT: COWICHAN VALLEY REGIONAL DISTRICT																																						
CLIENT REF. #: -- PROJECT: KERRY PARK REC CENTRE DOMESTIC HOT WATER TANK REPLACEMENT																																						
KEY PLAN: 																																						
DISCLAIMER: COPYRIGHT: THIS DRAWING AND DESIGNS COPYRIGHT PROTECTED WHICH SHALL NOT BE USED, REPRODUCED OR REVISED WITHOUT WRITTEN PERMISSION BY WSP-CANADA INC. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND UTILITY LOCATIONS AND REPORT ALL ERRORS AND OMISSIONS PRIOR TO COMMENCING WORK. THIS DRAWING IS NOT TO BE SCALED.																																						
ISSUE / REVISION: <table border="1"><thead><tr><th>NO.</th><th>DATE</th><th>DESCRIPTION</th></tr></thead><tbody><tr><td>--</td><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td><td>--</td></tr><tr><td>--</td><td>--</td><td>--</td></tr><tr><td>2</td><td>MAY 12, 2017</td><td>ISSUED FOR TENDER</td></tr><tr><td>1</td><td>APR.28.2017</td><td>ISSUED FOR REVIEW</td></tr></tbody></table>			NO.	DATE	DESCRIPTION	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	MAY 12, 2017	ISSUED FOR TENDER	1	APR.28.2017	ISSUED FOR REVIEW
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SEAL:

**COWICHAN VALLEY
REGIONAL DISTRICT**

PROJECT:

KERRY PARK REC CENTRE DOMESTIC HOT WATER TANK REPLACEMENT

BOILER ROOM

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ISS/REV	DATE	DESCRIPTION
PROJECT NO: 171-03959-00		DATE: 2017/04/10

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AS NOTED	
DESIGNED BY:	
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DRAWN BY:	
DMM	
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MECHANICAL

TITLE:

BOILER ROOM - DEMO & NEW

DRAWING NUMBER

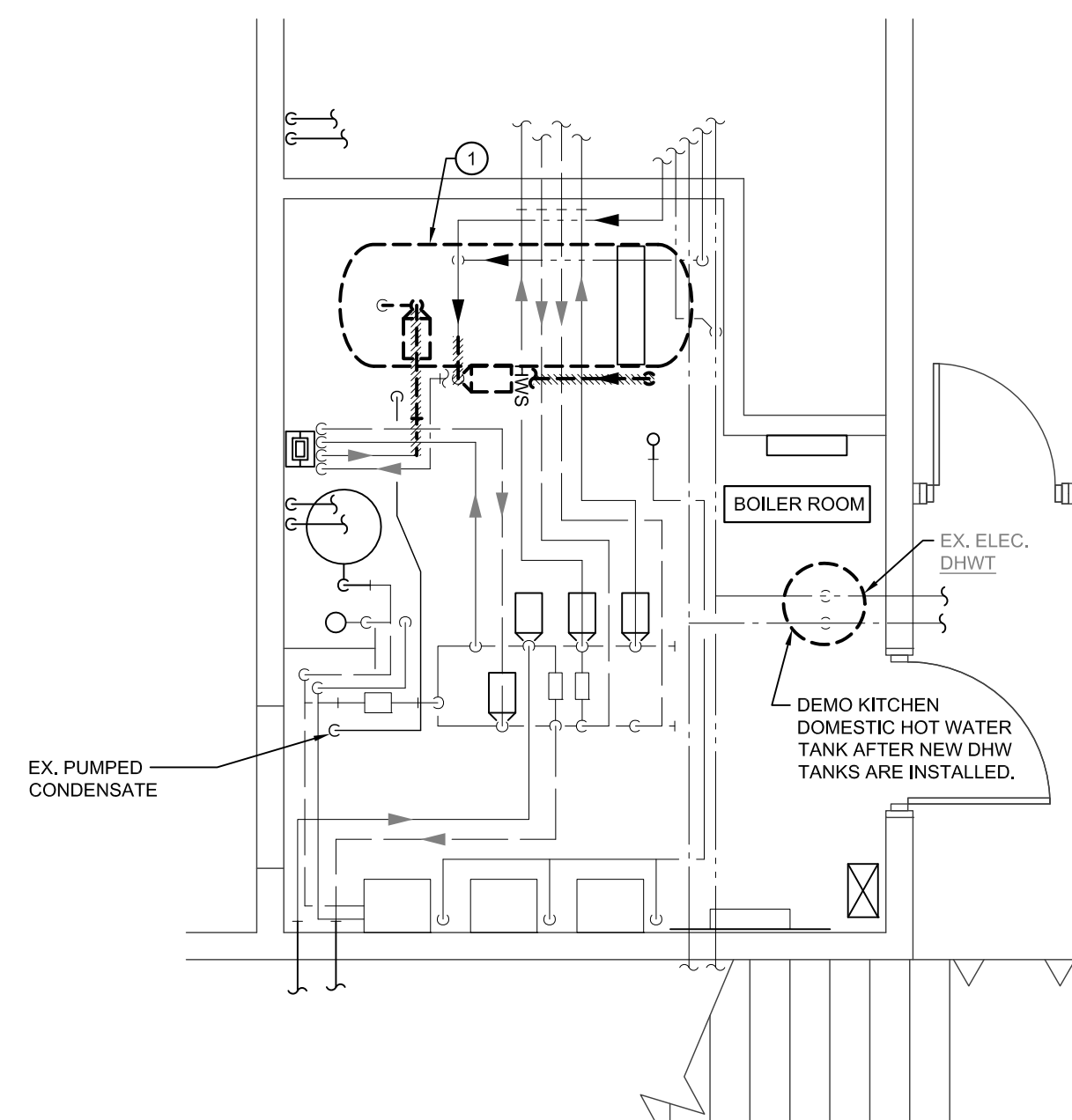
M-101

SHEET #: 2 OF 3

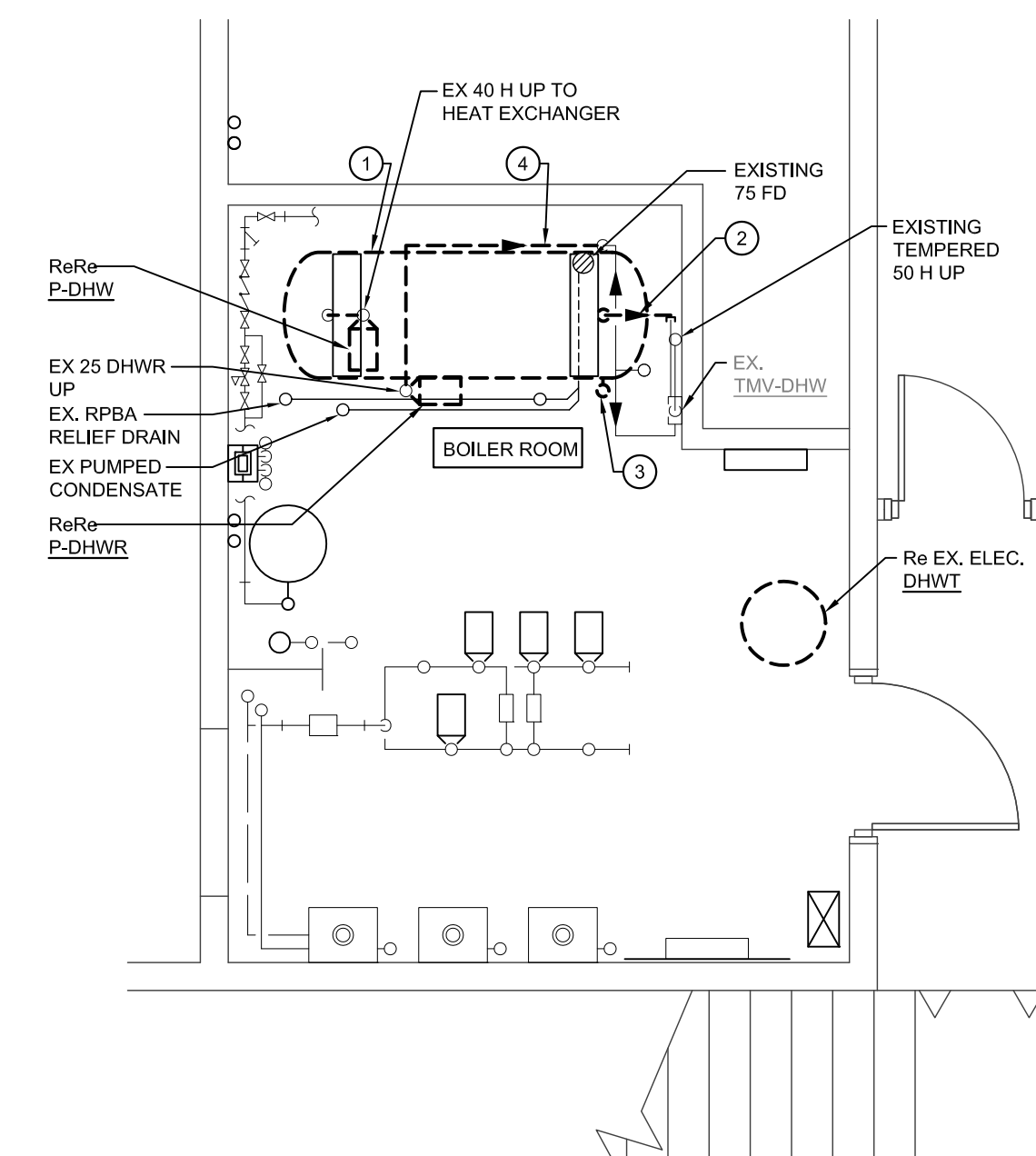
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DEMOLITION NOTES:

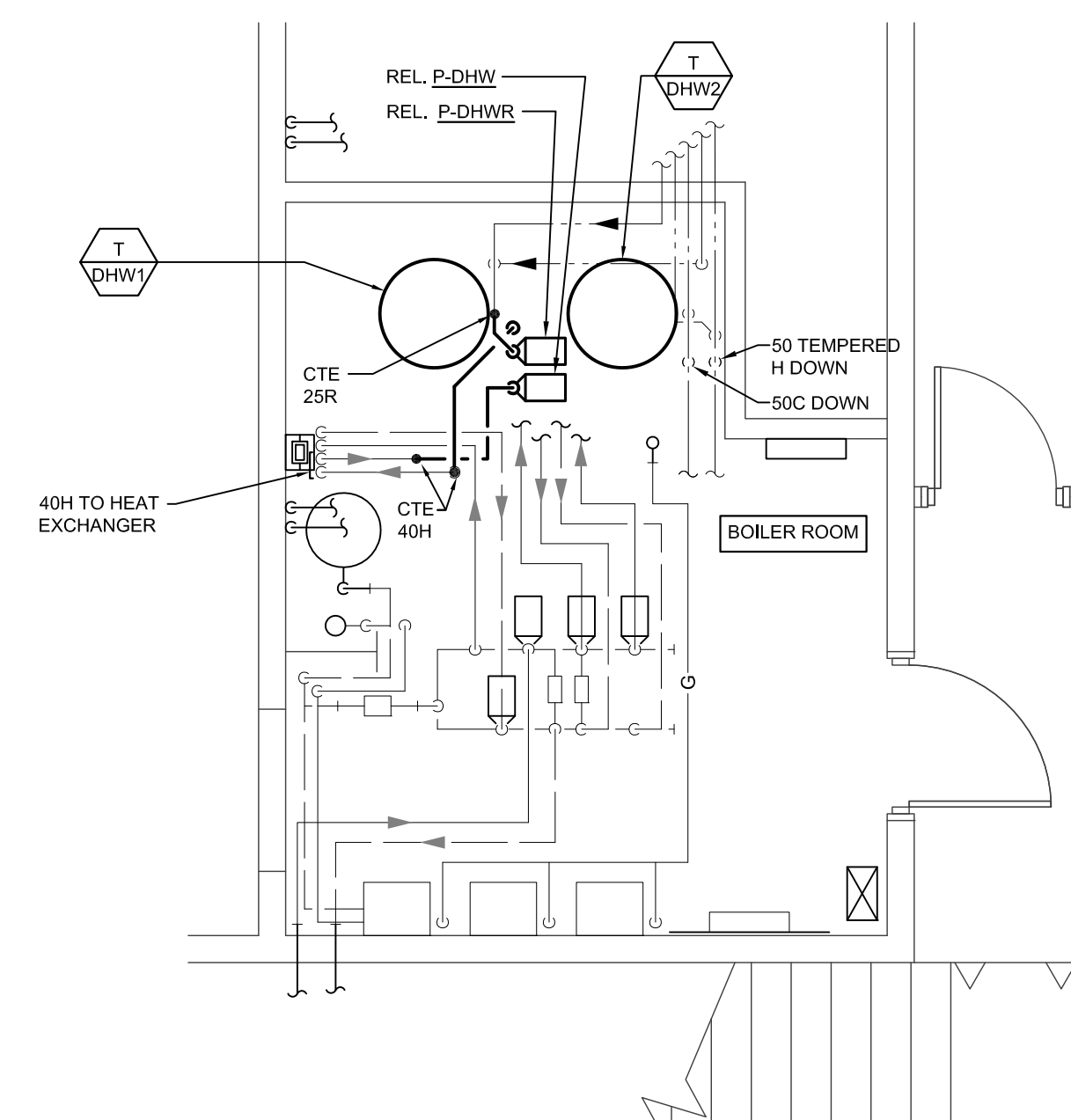
- 1 REMOVE DOMESTIC HOT WATER STORAGE TANK.
- 2 REMOVE 50 H FROM TANK TO DOMESTIC HOT WATER PIPING ON WALL TO TMV-DHW.
- 3 REMOVE 40 H PREHEAT
- 4 REMOVE 25 DHWR TO TANK AND RELOCATE DOMESTIC HOT WATER RECIRC. PUMP P-DHWR.



1 BOILER ROOM HIGH LEVEL DEMOLITION PLAN
M-101 SCALE: 1:50



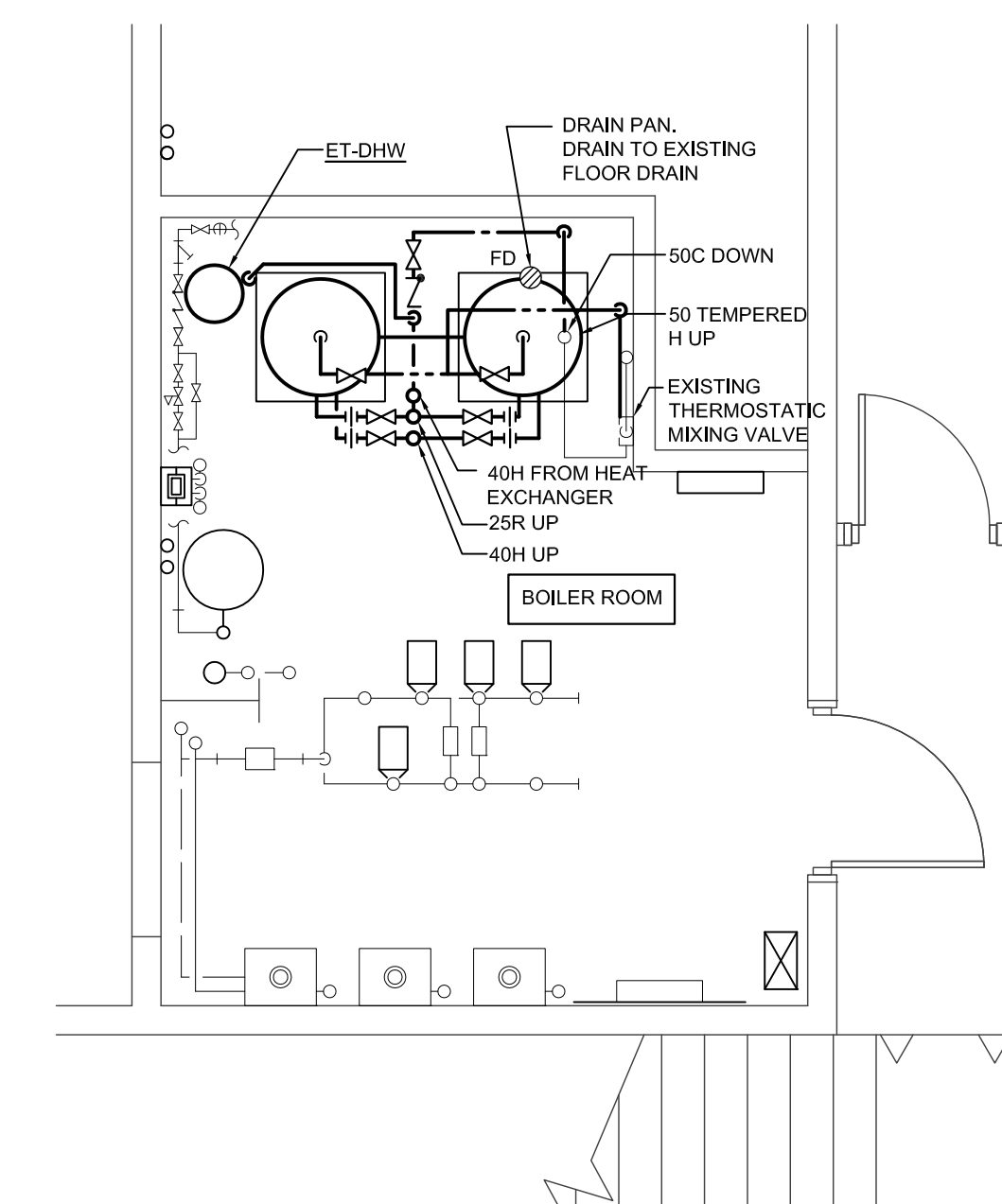
2 BOILER ROOM LOW LEVEL DEMOLITION PLAN
M-101 SCALE: 1:50



3
M-101

BOILER ROOM HIGH LEVEL PLAN
MECHANICAL - NEW

SCALE: 1:50



4
M-101

BOILER ROOM LOW LEVEL PLAN
MECHANICAL - NEW

SCALE: 1:50

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1. GENERAL

1.1. DEFINITIONS

- .1 Provide means supply and install.
- .2 Work means material and labour.
- .3 Consultant means WSP CANADA Inc.

1.2. GENERAL SCOPE

- .1 Provide the work indicated in the contract documents and as required to provide complete, tested and fully operational systems including all work not normally indicated but necessary for a complete and operational installation.
- .2 The Contractor is expected to be experienced and competent and knowledgeable about the trades and applicable codes, ordinances and industry standards and shall perform the work accordingly, on schedule and fully coordinated with all other trades.
- .3 The Contract Documents for this Division are an integral part of the complete contract documents for the project and will be interpreted in conjunction with all other Divisions.
- .4 Within ten (10) days of award of the Contract provide to the Consultant a price breakdown to the Consultant's satisfaction.

1.3. CODES, REGULATIONS AND STANDARDS

- .1 The work of this Section shall conform to the edition of codes, regulations and standards in effect at the time of award of Contract, and conform to the requirements of the Authorities Having Jurisdiction.

1.4. LIABILITY

- .1 Be responsible for layout of work and for any damage caused by improper execution of work.
- .2 Be responsible for condition of materials and equipment supplied and protect all work until work completed and accepted.

1.5. PERMITS AND FEES

- .1 Obtain all required permits and pay all fees including service connection fees as applicable to the work of this Section. Comply with all Provincial, Municipal and other legal regulations and bylaws applicable to the work.
- .2 Where Authorities Having Jurisdiction provide inspection, arrange for their inspection of all work. On completion of the work, furnish final unconditional certificates of approval by the inspecting authorities.

1.6. DRAWINGS AND MEASUREMENTS

- .1 Except where precisely indicated, the contract documents are diagrammatic and generally indicate the scope of work and general arrangement and establish minimum quality and performance requirements. Where there are conflicting requirements the Contractor shall allow for and provide the better quality and/or greater quantity unless the conflicting requirements are interpreted otherwise in writing by the Consultant.

1.7. SITE VISIT

- .1 This project involves renovations to an existing building. Visit the site before tendering and examine all local and existing conditions on which the work is dependent. No consideration will be granted for any misunderstanding of work to be done where the necessary information could have reasonably been obtained by an examination of the site.

1.8. WARRANTY

- .1 Provide the Owner with a written warranty that the equipment installed and the work performed under this contract will remain in serviceable condition for one (1) year from the date of final acceptance. Warranty shall include parts and labour.

1.9. WORKMANSHIP

- .1 Workmanship shall be in accordance with well-established practice and with standards accepted and recognized by the Consultant and the Trade.
- .2 The Consultant may reject any work not conforming to the Contract Documents or to accepted standards of performance, quietness of operation, finish or appearance.
- .3 Employ only tradesmen with valid Provincial Trade Qualification Certificates to perform only work permitted by their certificates.

1.10. SHOP DRAWINGS

- .1 Shop drawings/product data shall be reviewed, signed and processed as described by the Mechanical Contractors Association of British Columbia.
- .2 Provide an electronic copy or five (5) hard copies of shop drawings of all equipment on the drawings and specifications to the Consultant for review.
- .3 Review or non-review of shop drawings does not alter the requirements of the equipment and materials provided to conform to the specification.

1.11. PRODUCT QUALIFICATION / ALTERNATE MATERIALS AND EQUIPMENT

- .1 The product specified as Standard of Acceptance was used in preparing the design. Tenders may be based on the specified Standard of Acceptance or on any Acceptable Product listed provided that it meets every aspect of the drawings and specifications including efficiency and energy consumption.
- .2 Where other than the specified Standard of Acceptance is supplied, include for the cost of any resulting additional work (both under this Division and other Divisions) and any necessary redesign of installation or structure.
- .3 Addition of manufacturer's names as Acceptable Products will be by addendum only.
- .4 Multiple items of equipment material of the same type shall be of the same manufacturer.
- .5 Install and test all equipment and material in accordance with the detailed instructions and recommendations of the manufacturer.

1.12. ASBESTOS

- .1 All material/products provided shall be free of asbestos.
- .2 If existing asbestos is discovered which will be affected by the work of the Contract, immediately notify the Consultant. All work related to existing asbestos shall be handled in accordance with the requirements of WorkSafeBC (Workers' Compensation Board of British Columbia).

1.13. SEISMIC RESTRAINT

- .1 Provide seismic restraints for the piping and tanks specified in this Section to meet the requirements of the B.C. Building Code, to be in general conformance to SMACNA Guidelines, to keep the equipment in place during a seismic event, to minimize damage to the systems and equipment from a seismic event, to prevent systems and equipment from causing personal injury during a seismic event.
 - .2 Arrange and pay for the services of a structural professional engineer registered in British Columbia referred to here as the Seismic Engineer. The Seismic Engineer shall review, seal and sign all submittals required for all components, assemblies, attachments and installation procedures for the seismic restraint of all piping and tanks under this Section. The Seismic Engineer shall provide all necessary direction to the contractor during installation of the seismic restraint installation and submit a statutory declaration that the final seismic restraint installation conforms to the submittal documents sealed by the Seismic Engineer and satisfies all regulatory requirements.
 - .3 The Seismic Engineer shall submit Letters of Assurance Schedules S-B and S-C for the seismic restraint to the Consultant.
 - .4 The Seismic Engineer shall coordinate attachment to the equipment with the equipment manufacturer to ensure the method and location of attachment of the seismic restraint to the equipment does not compromise the structural integrity of the equipment.
 - .5 It is the entire responsibility of equipment manufacturers to design their equipment so that the strength and anchorage of the mounting points and internal components of the equipment exceeds the force level used to restrain and anchor the unit itself to the supporting structure during a seismic event of code design magnitude.
- 1.14. MISCELLANEOUS METAL
- .1 Be responsible for all miscellaneous steel work relative to this Section of the Specifications, including but not limited to:
 - .1 Support of equipment.
 - .2 Hanging, supporting, anchoring, guiding and related work as it applies to piping, ductwork and mechanical equipment.
 - .3 Earthquake restraint devices.

1.15. COORDINATION

- .1 Examine all contract drawings to verify space and headroom limitations for the required work. Coordinate the work with all trades and modify without changing the design intent to facilitate a satisfactory installation. Make no changes involving extra cost to the Owner without the Consultant's prior written approval.
- .2 Work out jointly all interference problems on the site and coordinate all work before fabricating, or installing any material or equipment. No consideration of payment will be made for additional work due to fabrication or installation of materials before a coordination issue was identified and resolved.

1.16. EQUIPMENT INSTALLATION AND ACCESSIBILITY

- .1 Provide unions and flanges to permit equipment maintenance, disassembly or removal, to minimize disturbance to piping and duct systems and to avoid interfering with building structure or other equipment.
- .2 All work shall be readily accessible for adjustment, operation and maintenance.
- .3 Pipe equipment drains to floor drains.
- .4 Ensure that equipment does not transmit noise or vibration to other parts of the building as a result of poor installation practices.

1.17. PIPE MOUNTED CONTROL EQUIPMENT

- .1 The following automatic control equipment will be supplied by the controls trade but shall be installed by the appropriate trade.
 - .1 Temperature control wells.
 - .2 Pressure tappings.

1.18. EXISTING SERVICES

- .1 Arrange work to avoid shutdowns of existing services. Where shutdowns are unavoidable, obtain the Owner's approval of the schedule of shutdowns.
- .2 Shutdowns of existing services will be carried out by the Owner's maintenance staff.
- .3 To avoid interrupting of existing services, temporary relocations and/or bypasses of piping may be required.
- .4 Before interrupting any services complete all preparatory work as far as reasonably possible and have all necessary materials on site and prefabricated (where practical) and work continuously to keep the length of interruption to a minimum.

1.19. DEMOLITION AND RE-USED EQUIPMENT

- .1 All piping, ducting and equipment which becomes redundant and is no longer required due to the work shall become the property of the Contractor and shall be completely removed from the site.
- .2 Where existing equipment is being relocated and re-used, check and report on the condition before removal to the Consultant. Any damage by the work of this contract is the responsibility of the Contractor.

1.20. PAINTING AND IDENTIFICATION

- .1 Apply a coat of rust inhibiting primer to all exposed, bare steel provided under this Section.
- .2 Make good any damage to factory finishes on equipment supplied under this Section.
- .3 Piping Identification
 - .1 Each system shall be labelled including directional flow arrows. Obtain from the Consultant the Pipe Identification Schedule.
 - .2 Identification labels may be stencilled or be vinyl cloth (Brady B500) or vinyl film (Brady B946), with adhesive compatible with the surface temperature, or plastic coil.
- .4 Valve Tags
 - .1 Provide valve identification tags appropriately secured. Tags may be of brass, aluminum, metalphoto, laminated plastic or fiberglass, stamped or engraved, 25 mm [1"] minimum diameter.
 - .2 Schedule the valve numbers using a sequential numbering system to the building standard and continuing from the last listed valve. Provide a valve tag list indicating valve number, system, location, normal operating position (open or closed) and the area it serves.

1.21. OPERATION AND MAINTENANCE MANUALS

- .1 Provide one suitably sized 3-ring binder with suitable label with all required materials inside to the Consultants as a draft copy for review. Make all required changes and resubmit the one binder to the Consultant. Repeat until accepted. Then submit three (four) manuals identical to the accepted copy to the Owner. Obtain a receipt and send a copy of the receipt to the Consultant.
- .2 Provide an index and tab each section and the manual shall include:
 - .1 List of local source of supply.
 - .2 Maintenance schedules.
 - .3 Copy of any required approvals, certifications, acceptance by Authorities Having Jurisdiction.
 - .4 All shop drawings.
 - .5 Manufacturer's operating and maintenance literature and wiring and control diagrams.
- .3 Provide the Consultant with a CD or DVD containing an electronic version of the entire accepted manual in an unprotected PDF format, with hierarchical bookmarks for all sections (e.g. Shop Drawings -- Plumbing Fixtures -- Tanks -- T-DHWI). Make all required changes and resubmit to the Consultant. Repeat until accepted. Then submit three [four] CD/DVD's identical to the accepted copy to the Owner. Obtain a receipt and send a copy of the receipt to the Consultant. The CD/DVD shall be identified as follows:
 - .1 CVRD Kerry Park Rec Centre DHW Replacement.
 - .2 "OPERATION AND MAINTENANCE MANUAL - MECHANICAL".

1.22. RECORD DRAWINGS

- .1 Keep a set of contract prints on site for the sole purpose of keeping an up-to-date, accurate record marked in red of the installation of mechanical services where they vary from the drawings.
- .2 Dimension the locations and inverts of buried or concealed services before they are concealed.
- .3 Submit the drawings to the Consultant. Make noted changes and corrections.
- .4 The Consultant will transfer the provided information to CAD record drawings and submit a printed copy to the Contractor. The Contractor shall add the contracting firm's name and authorized signature and date certifying the drawings as "RECORD DRAWINGS" and return them to the Consultant. The Consultant will submit the CAD record drawings to the Owner.

1.23. DEMONSTRATION AND INSTRUCTION TO OWNER

- .1 Provide certified personnel to demonstrate and provide maintenance instructions for each mechanical service to the Owner's operating staff. Provide adjustments of mechanical equipment and any changes or modification in equipment made under terms of guarantee.
- .2 Finalize demonstration and instructions by obtaining a signed statement from the Owner that the demonstration and instructions have been given satisfactorily.

1.24. SUBSTANTIAL PERFORMANCE

- .1 The work will not be considered to be ready for use or substantially complete until the following requirements have been met:
 - .1 All reported deficiencies have been corrected.
 - .2 Operation and Maintenance Manuals completed.
 - .3 Record Drawings ready for review.
 - .4 All demonstrations to the Owner have been completed.
- .2 Work under this Section which is still outstanding when substantial performance is certified will be considered deficient and hold-back will be established to be withheld until Total Performance and will be equal to at least twice the Consultant's cost estimate of completing that work.

2. INSULATION

2.1. GENERAL

- .1 Apply insulation and accessories so that the finished product is smooth and neat and with longitudinal seams concealed from view. Apply insulation, accessories and finishes in accordance with the manufacturer's recommendations.
- .2 Insulation and vapour barrier shall be continuous through all non-rated separations.
- .3 Finish and seal insulation at hangers, supports and other insulation protrusions.
- .4 Where exposed, terminate piping insulation 75 mm [3"] back from all uninsulated fittings for working clearance and around the base of thermometer wells, pressure gauges, flow switches and pressure and control sensors and bevel insulation at 45° and finish with a hard coat insulating cement to match the adjacent insulation.
- .5 Where concealed, terminate piping insulation 75 mm [3"] back from all uninsulated fittings, with heavy coat of vapour barrier coating to secure glass fibres.

2.2. PIPING INSULATION

- .1 Materials:
 - .1 Mineral Fibre - Low and Medium Temperature, vapour barrier jacket. Maximum thermo conductivity: 0.033 W/m·°C at 24°C [0.23 Btu·in/(h·ft²·°F) at 75°F];
 - .1 Acceptable Products: Johns Manville Micro Lok Ap-T Plus, Manson Alley K, Owens Corning SSL-II, Partek Paroc 1200 ASJ/SSL.
 - .2 Tape - self-adhesive, aluminum, reinforced, 50 mm [2"] wide
 - .3 Vapour barrier jacket adhesive:
 - .1 Acceptable Products: Childers CP-82, Foster 85-20.
 - .4 PVC Fitting Covers
 - .5 Canvas Jacket:
 - .1 Laid weave cotton, fire retardant..
 - .2 Lagging adhesive: Robsons white lag.
 - .2 Scope: Warm/Hot Piping
 - .1 All domestic hot water supply and recirculation piping - 25 mm [1"] thickness
 - .2 Installation:
 - .1 Mineral fibre insulation
 - .2 Spreading staples at 75 mm centres.
 - .3 Tape over all joints and secure with staples
 - .4 Fittings - tightly wrapped flexible insulation to full thickness with PVC fitting cover
 - .5 Valves, Strainers - fitted pipe insulation with drains, blowoff plugs and caps uninsulated
 - .6 Flanges, mechanical joints - oversized pipe insulation overlapping adjoining insulation at least 75 mm [3"]
 - .7 Thermocanvas jacket finish
 - .3 Scope: Cold Piping
 - .1 All domestic cold water piping -
 - .2 Installation:
 - .1 The insulation shall include provision of a continuous vapour barrier.
 - .2 Mineral fibre insulation
 - .3 Spreading staples at 75 mm centres.
 - .4 Tape over all joints with vapour-barrier adhesive and staples
 - .5 Fittings - tightly wrapped flexible insulation to full thickness with PVC fitting cover
 - .6 Valves, Strainers - fitted pipe insulation with drains, blowoff plugs and caps uninsulated
 - .7 Flanges, mechanical joints - oversized pipe insulation overlapping adjoining insulation at least 75 mm [3"]
 - .8 Thermocanvas jacket finish.

3. PLUMBING SYSTEMS

3.1. GENERAL

- .1 All work and equipment shall be in accordance with the B.C. Plumbing Code and the Authorities Having Jurisdiction.
- .2 Tests shall be as follows:
 - .1 Domestic water - hydraulic, system station pressure for 8 hours.

3.2. PIPING, VALVES AND FITTINGS

- .1 Water Piping
 - .1 Type "L" copper pipe above ground with cast brass or wrought copper fittings 95/5 Sn/Sb solder.
- .2 Hangers and Supports: Cadmium plated hanger rods. For steel or cast iron pipe, Grinnell Fig. 260. For copper pipe, Grinnell Fig. CT-65 (copper plated) or Grinnell Fig. 260 epoxy coated
- .3 Install dielectric couplings at copper piping connections to plumbing equipment of dissimilar material.
- .4 Valves:
 - .1 Sweat ends - Acceptable Products: Toyo 5049A, Apollo, Crane, Kitz, Neuman-Hattersley, Nibco, Watts, Worcester.
 - .2 Threaded ends - Acceptable Products: Toyo 5044A, Apollo-70 Series, Crane 93-TF, Grinnell 3700 full port, Kitz 58, Neuman-Hattersley 1969AT, Nibco T-580-BR, Watts B-6000, Worcester 4211-RT.
- .5 Strainers: Bronze equal to Crane 9881-1/2. Acceptable Manufacturers: Toyo, Jenkins.
- .6 Pressure Gauges: Weiss - Bourdon tube type. Cock and snubber. 100 mm [4"] minimum diameter gauge.
- .7 Domestic Hot Water Storage Tanks
 - .1 Refer to Equipment Schedule on drawing M-001.
- .8 Domestic Hot Water Expansion Tank
 - .1 Refer to Equipment Schedule on drawing M-001.

4. CONTROLS

4.1. GENERAL

- .1 The existing controls system is manufactured by Reliable Controls and provided by Foster Air Conditioning, Houle Electric or Kerr Controls using competent personnel directly and regularly employed by that company.

4.2. ELECTRICAL COMPONENTS, WIRING AND CONDUIT

- .1 By Control Contractor:
 - .1 All new control system components to make a complete and operable system.
 - .2 Control wiring and metallic conduit for mechanical system controls.
 - .3 Supply, installation and connection of all electric control items.
- .2 Carrier System:
 - .1 All wiring in mechanical service rooms, where exposed to view and all 120 volt wiring shall be run in EMT conduit except the final 900mm [36"] of wiring to all operators and to all sensors subject to vibration shall be run in flexible metallic conduit.
 - .2 Provide steel fittings with nylon throats for all conduit connections.
 - .3 Identify each wire and cable at every termination point.

4.3. EQUIPMENT SUPPLIED FOR INSTALLATION UNDER OTHER SECTIONS

- .1 Hand over sensor wells to the appropriate trade sections for installation.
- .2 The Controls Contractor shall be responsible for arranging, coordinating and supervising the installation of the above devices in a suitable manner and readily accessible location.

4.4. GRAPHICS, CALIBRATION AND DEMONSTRATION

- .1 Set up and calibrate DHW system sensors during the initial start-up of the systems and check, recalibrate and readjust and debug operation as necessary.
- .2 Update the existing system graphics to incorporate the DHW system modifications and the controls additions and modifications.
- .3 Demonstrate the controls system to the satisfaction of the Consultant and the Owner.

4.5. PRODUCTS

- .1 Installation:
 - .1 All equipment shall be installed according to manufacturers' published instructions.
 - .2 All sensors shall be stabilized to such a level as to permit on-the-job installations that will require minimum field adjustments or calibration.
 - .3 Install labels on all sensors and actuators identifying the point name.

4.6. SEQUENCE OF OPERATION

- .1 Domestic Hot Water Heating
 - .1 Operate the domestic hot water heat exchanger circulation pump P-DHW to maintain the domestic hot water tanks setpoint temperature.
 - .2 On a call for DHW heat, operate the Boiler(s) at high temperature.
 - .3 Operate the domestic hot water recirculation pump P-DHWR on a schedule advised by the owner.
 - .4 Monitor the common DHW tank outlet temperature.
 - .5 Monitor the common DHW tank return temperature to the Heat Exchanger.



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CONSULTANT - SUB-CONSULTANT:

SEAL:

CLIENT:

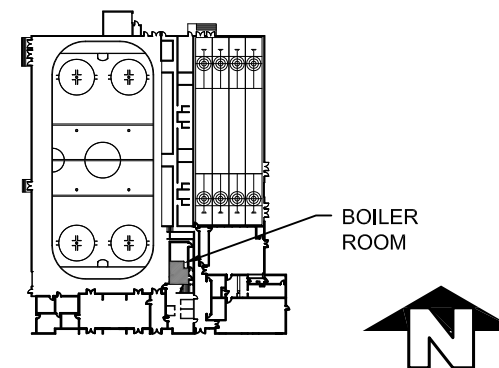
COWICHAN VALLEY
REGIONAL DISTRICT

CLIENT REF. #: --

PROJECT:

KERRY PARK REC CENTRE
DOMESTIC HOT WATER
TANK REPLACEMENT

KEY PLAN:



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ISSUE / REVISION:

NO.	DATE	DESCRIPTION
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2	MAY 12, 2017	ISSUED FOR TENDER
1	APR. 28, 2017	ISSUED FOR REVIEW

ISS/REV	DATE	DESCRIPTION
171-03959-00		2017/04/10

ORIGINAL SCALE:
AS NOTED

DESIGNED BY:
CH

DRAWN BY:
DMM

CHECKED BY:
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DISCIPLINE:
MECHANICAL

TITLE:
SPECIFICATION

DRAWING NUMBER:
M-102

SHEET #:
3 OF 3

ISSUE:
TENDER

DATE OF: MAY 12, 2017