

The Town of Oliver
Firehall Photovoltaic Tender

CONTRACT DOCUMENTS AND SPECIFICATIONS

SET NO. _____

UES Engineering
Date: June 25, 2020
Project No. 203-001

Town of Oliver

2020 Firehall Photovoltaic Tender

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April 2000 Electrical Drawings.Pdf.– Original Firehall electrical drawings from April 2000.

Site photos.zip – Collection of 19 photos of existing electrical room, electrical panels, and roof.

INVITATION TO TENDER

Town of Oliver
Firehall Photovoltaic Tender

Sealed Tenders clearly marked "**Firehall Photovoltaic Tender**" will be received at the Town of Oliver, 6150 Main Street, up to 2:00pm local time, Thursday, July 16th, 2020. Due to COVID-19 tenders will be not be opened in public, but they will be posted to web site once they have been reviewed and verified.

The project comprises the following works and approximate quantities:

- Supply and installation of a 9kW and a 14.4kW 120/208V 3-phase Solar Edge inverters at existing electrical room, c/w tie in to spare space at bottom of existing 120/208V service panel. SolarEdge has been selected for superior safety features and monitoring.
- Supply and install 24kW of photovoltaic panels c/w mounting to existing metal (24 gauge steel) Varco Pruden SSR, c/w DC-DC optimizers for each panel. The base tender will be a "flat" (0 degree) installation, as SSR seams run East-West.
- Supply and install combination box, wiring, etc. necessary to complete the job.
- Optional tender item – supply additional panels – up to 8kW (for a total of 32kW).
- Optional tender item – supply tilt mount – bidder to specify angle.
- Contractor to supply all conduit, wiring, and permits required to complete the above scope of work.
- Existing 200A 120/208V service has spare room for two 3-phase breakers.

Tender Documents may be obtained from the office of UES Engineering on or after June 30th, 2020, which is non-refundable. A *Planholder Registration Form* must be completed and faxed to UES Engineering in order to receive any addendums and/or additional information regarding this tender. It is the sole responsibility of the Planholder to ensure that the Registration Form has been received by UES Engineering. Tender documents will be available for viewing by contractors at the office of UES Engineering.

Tenders do NOT require a bid bond.

If the information stipulated above is not enclosed with the Tender at the time of opening, the Tender will be rejected.

Tenders received after the closing time will be returned unopened.

The District reserves the right to reject any and all bids, and the lowest bid will not necessarily be accepted.

Engineer

UES Engineering
#201 – 2710 39th Ave.
Vernon, B.C. V1T 3C1

Phone: (250) 275-4939
Fax: (250) 275-4938

Owner

Town of Oliver
6150 Main St., Box 628
Oliver, B.C. V0H 1T0

Phone: 250-485-6200
Fax: 250-498-4466

PLANHOLDER REGISTRATION FORM

Request for Tender No. _____

***TOWN OF OLIVER
FIREHALL PHOTOVOLTAIC TENDER***

CLOSING DATE AND TIME: 2:00 PM, Thursday, July 16th, 2020

For any further distributed information about this Request for Tender please complete this form and e-mail, fax or hand deliver IMMEDIATELY to:

UES ENGINEERING
#201 – 2710 39th Avenue
VERNON, B.C. V1T 3C1
Attention: **Tyler Underwood**
Fax: 250-275-4938
Email: tyler.underwood@ues-eng.com

Company Name:			
Address:			
Contact Person:			
Contact Telephone:		Contact Fax:	
Contact Email:			

Only Proponents completing this form will be issued any addendums and/or any additional information regarding this tender. It is the sole responsibility to the Proponent to ensure that the receipt confirmation form has been received by UES Engineering.

Signature

Date

INSTRUCTIONS TO TENDERERS

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INSTRUCTIONS TO TENDERERS

2.1 SUBMISSION OF TENDER

Sealed Tenders shall be addressed to:

Town of Oliver
6150 Main Street
Oliver, B.C. V0H 1T0

Attention: Shawn Goodsell

The Tender envelope shall be clearly marked:

2020 Firehall Photovoltaic Tender

It is the Tenderer's responsibility to ensure that the Tender is in the hands of the Owner no later than 2:00pm on Thursday, July 16, 2020..

2.2 ACCEPTANCE OR REJECTION OF TENDERS

The Owner reserves the right to reject any or all Tenders and to waive irregularities and formalities at his discretion. The lowest Tender will not necessarily be accepted. Without limiting the generality of the foregoing, any tender may be rejected for any of the following reasons:

- Incomplete Tender;
- Obscured or irregular erasures or corrections in the Tender Form;
- Prices omitted or unbalanced;
- Evidence of inadequate capacity to perform the contract;
- Evidence of previous failure to perform adequately on similar work.

The Owner may accept a Tender by issuing a "Notice of Acceptance".

2.3 INFORMATION CONCERNING TENDERS

Tenderers shall carefully examine the Contract Documents and the site of the Proposed Work, and shall fully inform themselves as to all existing conditions and limitations which will affect the execution of the Contract. No consideration will be given after submission of a Tender to any claim that there was any misunderstanding with respect to the conditions imposed by the Contract.

Discussions or other oral conversations shall not become a part of the Contract Documents or shall not modify the Contract Documents unless confirmed by Addenda.

2.4 ADDENDA

If there are to be any changes in the Work, or in the tendering procedures, the Tenderers will be informed, prior to the close of the period allowed for received Tenders, by means of an Addendum, a written communication issued by the Owner. All Addenda shall become a part of the Contract Documents, and receipt of Addenda must be acknowledged by the Tenderer in the Tender.

2.5 DISCREPANCIES AND OMISSIONS

If a Tenderer finds discrepancies in, or omissions from the drawings, specifications, or other documents or has any doubt as to the meaning or intent of any part thereof, he shall at once inform the Owner in writing. Any necessary changes, or additions, or further explanations will be made by the Owner by issuing an Addendum.

2.6 TENDER GUARANTEE

No bid bond or other surety is required for this project.

2.7 PREVIOUS EXPERIENCE

The Tenderer shall complete a statement of previous and existing clients for whom similar contract work has been undertaken. This statement of previous experience shall be completed on the form provided and submitted with the Tender.

2.8 PERFORMANCE SECURITY

The Tenderer to whom the Contract Award is made shall furnish the Owner, within seven (7) calendar days after receipt of Notice of Award, the following:

1. A CERTIFIED CHEQUE or BANK DRAFT payable to the Town of Oliver in the amount of at least ten percent (10%) of the accepted tender price

When the contract agreement has been signed by the successful tenderer, tender security in the form of a CERTIFIED CHEQUE or BANK DRAFT will automatically become the performance security as specified in (1) of this section.

2.9 MAINTENANCE SECURITY

Upon contract completion and where a performance bond including maintenance provisions is not provided, the successful Tenderer shall provide maintenance security, in the amount of five percent (5%) of the Final Contract Sum, in the form of a CERTIFIED CHEQUE, BANK DRAFT or CLEAN IRREVOCABLE LETTER OF CREDIT, payable to the Town of Oliver.

The Maintenance Security shall be deposited with the Owner PRIOR to release of the Performance Security.

2.10 INSURANCE COVERAGE

The Tenderer shall provide, within seven (7) days after execution of the Contract Agreement by the Owner, Certificates of Insurance to cover public liability and property damage and automobiles owned and non-owned, as outlined in the General Conditions. All policies shall be for a minimum of \$2,000,000.

2.11 INFORMATION AND SITE VISIT ARRANGEMENTS

Tenderers may examine the project site between July 6th and July 9th from 8am to 2pm during regular working hours. Meetings must be pre-arranged with the public works department. Contact:

Shawn Goodsell, 250-485-6216

2.12 SUBCONTRACTORS AND EQUIPMENT

The Tenderer must show in the Tender Form the names and business addresses of proposed subcontractors and the equipment intended to be used, including capacities of each machine. The words "as required" or similar wording are not a sufficient description.

2.13 CANCELLATION OF TENDER

The Owner reserves the right to withdraw from the Tender process, at any time, even after the close of Tenders. The Owner shall not be responsible for any costs incurred by any Tenderer for the preparation of a Tender for this Contract in the event that the Tender Call is cancelled and/or all Tenders are rejected.

2.14 AMENDMENT OF TENDERS

The tenderer may amend or revoke a tender by giving written notice delivered by hand, mail or fax to the office referred to in paragraph 2.1 of the Instructions to Tenders, providing the following conditions are met:

- An amendment or revocation must be received by the *Tender Closing Date and Time*. An amendment or revocation that is received after the *Tender Closing Date and Time* shall not be considered and shall not affect a tender as submitted.
- An amendment or revocation must be signed by an authorized signatory of the Tenderer, with the date and project title clearly stated.
- Amendment must clearly state which tender prices or items are being deleted, and which revised prices or items are being submitted.
- Any amendment that expressly or by inference discloses the Tenderer's Tender Price (Contract Sum) or other material element of the tender such that, in the opinion of the Owner, the confidentiality of the tender is breached, will invalidate that Tenderer's entire tender.

The Owner assumes no risk or responsibility whatsoever that any fax will be received as required, and shall not be liable to any Tenderer if for any reason a fax is not properly received.

Should the above conditions not be met, the amendment will be disregarded and the Tender evaluated as

received.

2.15 TENDER SUBMISSION – DISCREPANCIES AND OMISSIONS

At the tender close, the owner or his representative will witness receipt of tender submissions. The tenders will be checked for general conformance with submission requirements only (i.e. provision of securities, completed tender form).

Subsequent to the tender close, an audit will be conducted by the owner or his representative to check individual tenders for completeness and accuracy. Errors and omissions will be dealt with as follows:

- Omission of prices, obscured or irregular erasures, or corrections of prices in the tender form (or faxed revisions) which lead to the inability to determine a fixed contract sum will result in the rejection of the tender. Omission of both a unit price and corresponding extended total for a tender item will be cause for rejection of the tender.
- If there are any discrepancies in the *Schedule of Quantities and Prices* between the unit prices and the extended totals then the unit prices shall be deemed to be correct and corresponding corrections will be made to the extended totals.
- If a unit price or extended total has been omitted, the following shall apply:
 - If a unit price is given but the corresponding extended total has been omitted, then the extended total shall be calculated from the unit price and the estimated quantity, and inserted as the extended total.
 - If an extended total is given but the corresponding unit price has been omitted, then the unit price shall be calculated from the extended total and the estimate quantity, and inserted as the unit price.

TENDER OF:

(hereinafter called "the Tenderer")

TO: Town of Oliver
6150 Main Street, Box 638
Oliver, B.C. V0H 1T0

Gentlemen:

In response to the Invitation to Tender, the Tender and Contract Documents, and the site of the proposed Work have been carefully examined for the

**Oliver 2020 Firehall Photovoltaic System
Project**

located

in Oliver, B.C.

The Undersigned offers to provide all necessary labour, equipment, materials and tools to undertake the Work in accordance with these Contract Documents and Drawings for prices quoted in this Tender Form. The Tenderer agrees that the Owner will not be responsible for any errors or omissions on the part of the Tenderer in preparing this Tender.

The undersigned Tenderer agrees and offers as follows:

1. The Tenderer understands that the quantities for items given in the Schedule of Quantities are approximate and are subject to increase or decrease. The Tenderer offers to undertake the Work for the Tendered Unit Prices whether the quantities increase or decrease. The Tenderer agrees that the Tendered Unit Prices are firm and that allowances have been made for escalation of costs related to materials, labour, labour-related fringe benefits, equipment, operating costs associated with equipment, etc.
2. To begin work on the date specified in the "Notice to Proceed" and to execute the work in such a manner as to complete on or before October 31st, 2020. Should the undersigned fail to complete the project within this time, then the undersigned will compensate the Owner for liquidated damages as follows:
 - a) The Owner's increased costs for contract administration and inspection duties of the Engineer (or other professionals as required by the Owner), as well as the Owner's own staff costs as caused by such delay, an amount per day or pro rata portion of each day as follows:

B) Labour

Personnel which may be supplied by the Tenderer for use at the site.

Classification by Trade	All-Inclusive Hourly Rate, or N/A
Superintendent	_____
Foreman	_____
Surveyor	_____
Electrician	_____
Labourer	_____
Operator	_____
Others (please specify trade):	
_____	_____
_____	_____
_____	_____

C) Personnel

Name of Superintendent to be in charge of Project: _____

Previous Experience on similar work:

Number of workers in work force _____

**TOWN OF OLIVER
2020 Firehall Photovoltaic System**

SCHEDULES OF QUANTITIES:

ITEM NO.	DESCRIPTION	UNIT OF MEASURE.	EST. QUANT.	UNIT PRICE	TOTAL PRICE
1.0 Photovoltaic Installation					
1.1	Supply and installation of a 9kW and 14.4kW 120/208V 3-phase SolarEdge inverters in electrical room c/w connection c/w connection to existing 120/208V 200A panel (225A bus) including breakers.	L.S.	1	_____	_____
1.2	Supply and install 24,000W of photovoltaic panels complete with DC-DC optimizers and racking to mount to existing metal roof (24 guage steel, Varco Pruden SSR) Base tender to be a "flat" system (zero degree tilt) as SSR seams run East-West.	L.S.	1	_____	_____
1.3	Wire+conduit from photovoltaic array to inverters, sized for 32,000W, complete with all necessary combiner boxes, fuses, penetrations, etc. as required by Canadian Electrical Code. Include any other compoments required for installation not mentioned elsewhere in tender.	L.S.	1	_____	_____
1.4	Electrical permit	L.S.	1	_____	_____
1.5	Preparation of FortisBC net metering application.	L.S.	1	_____	_____
1.4	Optional item - supply and install from 0.4kW to 8kW of additional photovoltaic panels to the contract. Include all necessary ancilliary items to add panels (racking, wiring, optomizers, etc.) The intent is to add panels to scope, budget permitting.		up to 8kW	\$ _____ /kW	(do not include in total)
			Panel Size (Watts):	_____ W	
1.5	Optional item - supply tilt to racking system. Specify tilt angle and price per kW (system size. could be anywhere from 24kW base tender to 32kW with additional panels). Ballasted systems are not accepted due to weight.		ea 24 to 32	\$ _____ /kW	(do not include in total)
			Degree of tilt quoted	_____ °	
			Subtotal		_____
			GST @ 5%		_____
			Total Sum		_____

(1) Receipt is acknowledged of the following addendum(s) covering revisions to the Contract Documents.

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

TOTAL CONTRACT PRICE (written)

Name of Corporation, Partnership or Organization

Legal Status Corporation Partnership Sole Ownership

Correct Mailing Address

Phone

Fax

GST Registration No.

Names and Addresses of Corporation Officers or Members of Organization

Position

Name

Address

Position

Name

Address

_____ **SIGNED BY** _____
Signature of Witness

_____ **POSITION** _____

_____ **DATE** _____
Address of Witness

Affix Corporate Seal Here

CONTRACT AGREEMENT

This Agreement made on the ____ day of _____, 2020

BETWEEN: **Town of Oliver**
(hereinafter called the "Owner")

OF THE FIRST PART

AND:
(hereinafter called the "Contractor")

OF THE SECOND PART

WITNESSETH, that the Owner and the Contractor for the consideration hereinafter named, agree as follows:

1.0 SCOPE OF WORK

The Contractor hereby agrees to furnish all of the materials (except as otherwise specified to be supplied by others) and all of the equipment and labour necessary to perform all of the work in the specifications for the project entitled:

**Oliver 2020 Firehall Photovoltaic System
Project**

which specifications have been prepared by the Owner, or its duly appointed agent, acting as, and referred to herein as the "Engineer" all in accordance with the Documents listed in the "Contracts of the Contract Documents".

2.0 CONFLICTS - See General Conditions - GC-45

3.0 TIME OF COMPLETION

The work to be performed under this Contract shall be commenced within seven (7) calendar days of Notice to Proceed, and shall be completed on or before October 31st, 2020

It is understood and agreed that time is of the essence of this Agreement and in the event said work is not completed on or before the date named above for its completion, the Contractor shall pay the added engineering expense and other costs as liquidated damages to the Owner caused by the extra time required for the completion of the work. Extra time shall, in all cases, be construed as the time required for completion after the date named. The amount of such expense shall be deducted from any monies due the Contractor.

4.0 THE CONTRACT SUM

The Owner shall pay the Contractor for the performance of the Contract subject to additions and deductions provided therein, in current funds at the prices named in the Tender Form attached to and a part of these Contract Documents.

5.0 PROGRESS PAYMENTS

The Owner shall make payment on account of the Contract as certified by the Engineer and in accordance with the General Conditions of these documents.

6.0 SECURITY DEPOSIT

The Contractor hereby and herewith deposits with the Owner the following security guarantees:

1. A CERTIFIED CHEQUE or BANK DRAFT payable to the Town of Oliver in the amount of at least ten percent (10%) of the accepted tender price, or
2. A CLEAN IRREVOCABLE LETTER OF CREDIT, payable to the Town of Oliver in the amount of ten percent (10%) of the accepted total tender price. The CLEAN IRREVOCABLE LETTER OF CREDIT shall be valid for a period of One (1) Year, from the date of Contract Award, and shall be provided in accordance with the format contained in the Tender Documents, or

Upon the express understanding that the same shall be held and retained by the Owner as security for the due and faithful performance, observance and fulfilment by the Contractor of all the covenants, provisions, agreements, conditions and reservations in this Contract contained, on the part of the Contractor to be observed, performed and complied with.

Upon the due and faithful performance, observations and fulfilment by the Contractor of all and every one of the terms provisions, covenants, agreements, conditions and reservations herein contained on the part of the Contractor to be observed, performed and complied with, the Contractor shall be entitled to receive again the said security deposited.

In the event of any breach, default or non-performance, being made or suffered by the Contractor, in or in respect of any terms of conditions, covenants, provisions, agreements or restrictions herein contained which on the part of the said Contractor should be observed, performed, or complied with, the Owner may at his option, if any indemnity bond had been deposited under the terms hereof, enforce said bond.

7.0 SIGNATURES

IN WITNESS WHEREOF the parties hereto have executed this Agreement, the day and year first above written.

SIGNED, SEALED AND DELIVERED
in the presence of:

_____ (SEAL)
(Witness) (Party of the First Part)

(Address)

_____ (SEAL)
(Witness) (Party of the Second Part)

(Address)

**Town of Oliver
2020 Firehall Photovoltaic System
Project**

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1A- 1.0 General

1. These Special Provisions shall be read in conjunction with the Contract Documents and Specifications and shall take precedent over all other clauses and sections of these Contract Documents.

1A- 2.0 Scope of Work

1. The Contractor shall supply all labour, equipment and materials necessary to construct the works as shown on the design drawings, including cleanup and restoration of the work site.
2. Costs for mobilization and demobilization are incidental to the work; as such, specific payment will not be made for these items. The Tender Form quantities and prices are to be inclusive of mobilization and demobilization.
3. The Owner reserves the right to adjust the scope of work, including increase/decrease or deletion of quantities shown in the Tender Form. Provision of such alterations is detailed in the General Conditions, Section GC-17.0.

1A-3.0 Provisional Contract Sum

1. The Provisional Contract Sum shall be a fund used solely at the discretion of the Owner or his representative. These funds may be used for extra works other than those specified herein. Unused portions of the Provisional Contract Sum will revert back to Owner.

1A- 4.0 Work Schedule and Project Site Meetings

1. Prior to commencement of the Contract, the successful Bidder shall be required to submit a proposed Work Schedule showing clearly the intended progress for each week for the duration of the project.
2. The Contractor shall be responsible for the co-ordination and ordering of all materials and equipment required to complete the project in accordance with the Schedule.
3. The Contractor's project site superintendent shall attend a weekly on-site project meeting with representatives of the Engineer, the Owner, and other utility operators as may be necessary. At each project site meeting, the Contractor shall review progress of the preceding week, intended operations during the following week and discuss/review appropriate measures and procedures to minimize nuisance and/or inconvenience to the public. Minimization of inconvenience and/or nuisance to the public shall be an important aspect of the Contractor's operations and work plans.
4. Attendance by representatives of the Contractor at weekly site meetings shall be an incidental item to the work of this Contract and, accordingly, no specific or extra payment shall be made for the Contractor's participation in weekly site meetings.

1A-5.0 Contacts

- | | |
|--|--|
| 1. Shawn Goodsell, Town of Oliver
(for inspections) | Phone – (250) 485-6216 |
| 2. Tyler Underwood, UES Engineering
(for technical questions) | Phone – (250) 275-4939
Fax – (250) 275-4938 |

1A- 6.0 Materials On-Site

1. No payment will be made to the Contractor for materials stored on-site. Payment will be made for installed materials only, in accordance with Tendered Unit and Lump Sum Prices of the Tender Form.
2. The Contractor shall be responsible for obtaining a suitable site for storage of his equipment, materials and other facilities necessary to undertake the work of this Contract. This storage location must be approved by the Owner.

1A- 7.0 Protection of Survey Monuments, Bench Marks and Layout

1. Any survey monuments and/or property iron pins damaged or removed by the Contractor by his operations which are deemed to be located outside of the site construction area shall be replaced by the Contractor at his expense.
2. The Contractor shall be responsible for all construction layout from given reference points.

1A- 8.0 Field Quality Control

1. The Owner will pay for any testing required by Technical Safety BC as part of the electrical permit or by FortisBC for interconnection.
2. The cost of failed tests because of non-compliance of the work with the minimum requirements of materials and workmanship shall be paid for by the Contractor. The costs of these extra tests will be calculated by the Engineer, based on the invoices submitted to the Owner for testing and will be subtracted from the monthly progress payment.

1A-9.0 Location of Existing Utilities and Compensation for Related Work

1. The design drawings show the approximate location of known existing utilities such as water mains, gas mains, sewer, storm sewers, etc. However, other services may exist and the Contractor shall use care and caution in his excavation operation so as not to break any existing services.
2. Existing services and structures include pipes, culverts, ditches, poles, or other items which are part of an existing drainage or water system, or are part of a gas, power, telephone, T.V. or other program.
3. The Contractor shall establish the locations and state of use of all existing utilities that may represent a conflict to the work of this contract. The contractor shall supply all labour and materials necessary to locate, protect, remove and/or replace existing utilities.
4. The Contractor shall include in his Unit Prices, any additional expense that may be incurred in

doing additional work made necessary by the presence of existing piping, structure, pole-lines, trees, fences, culverts, drainage ditches, or any other above or below ground obstacles and utilities which are encountered during the course of construction.

5. The Contractor will be responsible for any damage that may arise, as a result of the Contractor's negligence in failing to locate and protect these utilities.
6. The Contractor is responsible for the co-ordination of his work with all utility companies as well as the Owner.

1A-10.0 Adjustment of Appurtenances

1. Payment will be made for the adjustment to grade of existing utility appurtenances such as curb stops, valve boxes, manholes, catch basins, etc. only where provisions for payment are made in the Tender Form.
2. Where no provisions are made in the Tender Form for payment for utility grade adjustment in a specified work area, adjustment of utility appurtenances shall be considered as an incidental item to other components of the work (i.e. matching grade/crossfall to finished asphalt/gravel).

1A-11.0 Clean Up and Restoration of Project Site

1. The Contractor will be required to clean and restore the entire project site area prior to issuance of a Final Completion certificate.
2. This work shall include but not be limited to removal of all waste materials and garbage, sign restoration, etc.

GENERAL CONDITIONS

TOWN OF OLIVER

6505 Main Street
Oliver, BC
V0H 1T0

GENERAL CONDITIONS

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1. DEFINITION OF TERMS, DOCUMENT PRECEDENCE AND DISCRETION

1.1 In the Contract:

- (a) "Addendum" means a document issued under IT 4;
- (b) "Bid" means a bid submitted to the Owner in accordance with the Instructions to Bidders;
- (c) "Bid Documents" means the Instructions to Bidders, Bid Form, General Conditions, Special Conditions and Specifications;
- (d) "Bid Form" means the bid form contained in the Contract Documents and any appendices to it that are expressly contemplated by the Contract Documents;
- (e) "Bidder" means anyone who submits a Bid;
- (f) "Closing Time" means the deadline specified for receipt of Bids by the Owner;
- (g) "Certificate of Substantial Completion" means the Certificate of Substantial Completion issued under GC13;
- (h) "Certificate of Total Completion" means a certificate of Total Completion issued under GC19;
- (i) "Completion Date" means the date for Total Completion of the Work set out in the Contract;
- (j) "Construction Schedule" means the schedule of performance of the Work submitted by the Bidder as part of its Bid;
- (k) "Contract" means the contract for performance of the Work to Total Completion that is entered into between the Owner and the Contractor, which contract is on the terms and conditions contained in the Contract Documents;
- (l) "Contract Documents" means
 - (i) Invitation for Bids;
 - (ii) Instructions to Bidders;
 - (iii) Bid Form;

- (iv) Form of Contract;
- (v) General Conditions; and
- (vi) Specifications;
- (m) "Contractor" means the Bidder to whom the Contract has been awarded in accordance with IT 9;
- (n) "Form of Contract" means the document with that name contained in the Contract Documents;
- (o) "GC" is, when used in conjunction with a numeral, a reference to the section of the General Conditions with the same numeral;
- (p) "General Conditions" means the Contract terms and conditions of that name that are contained in the Contract Documents;
- (q) "Invitation for Bids" means the notice published or communicated by the Owner by which the Owner invited Bids for the Contract;
- (r) "IT" is, when used in conjunction with a numeral, a reference to the article or section of the Instructions to Bidders with the same numeral;
- (s) "Notice of Award" means the notice of award of the Contract given in accordance with IT 9;
- (t) "Owner" means the Town of Oliver;
- (u) "Owner's Representative" means, subject to GC1.2, the person designated by the Owner in the Notice of Award as the Owner's representative for the Contract, and includes any other person expressly authorized by that person to act on that person's behalf;
- (v) "Specifications" means any drawings or specifications, or both, for the Work contained in the Contract Documents;
- (w) "Total Completion" means total and satisfactory completion of the Work in accordance with the Contract Documents, as determined by the Owner's Representative under these General Conditions;

- (x) "Substantial Completion" means substantial performance of the Work as determined by the Owner's Representative determined by in accordance with the *Builders Lien Act* (British Columbia);
- (y) "Work" means the project of work described in the Contract Documents, including the Specifications; and
- (z) "Work Change" means a change in the Work ordered in writing by the Owner's Representative under the General Conditions, that is:
 - (i) a deletion from the Work; or
 - (ii) an addition to or revision of the Work which is within the general scope of the Contract

but does not, in either of the above cases, include a variation in quantity of unit price items.

1.2 If the Owner does not designate anyone in the Notice of Award as the Owner's Representative for the Contract, the Corporate Administrator of the Owner is the Owner's Representative.

1.3 If there is any conflict or inconsistency within or between any of the Contract Documents, the following order of priority among documents, proceeding from highest to lowest priority, applies, and a Contract Document with higher priority prevails over a Contract Document with lower priority to the extent of any conflict or inconsistency:

- (a) General Conditions;
- (b) specifications included within the Specifications;
- (c) drawings included within the Specifications;
- (d) drawings of larger scale prevail over drawings of smaller scale of the same date;
- (e) dimensions shown on drawings prevail over dimensions scaled from drawings;
- (f) later dated documents prevail over earlier documents of the same kind;

- (g) Bid Form;
- (h) Instructions to Bidders; and
- (i) Invitation for Bids.

1.4 In respect of the Contract, any act, decision, consent or exercise of discretion by a party must be performed, made or exercised acting reasonably unless the Contract expressly provides that the act, decision, consent or exercise of discretion is in the "sole discretion" of that party, in which case that party is under no duty to act fairly, reasonably or in good faith and may act unreasonably, in its absolute and unfettered discretion.

1.5 For clarity, the Contractor and the Owner agree that the terms and conditions of the Contract are as set out in these General Conditions and in the other Contract Documents.

2. CONTRACTOR'S GENERAL OBLIGATION

The Contractor at its risk and expense must perform the Work to Total Completion, including by doing everything, and supplying all personal property, necessary to do so, in accordance with the Contract Documents and on or before the Completion Date. Without limiting the generality of the foregoing, the Contractor must use only new materials in performance of the Work and must perform the Work applying generally accepted best standards and practices in the British Columbia construction industry for work such as the Work. The Contractor must begin the Work within 10 days after Notice of Award is given to the Contractor, or within such greater period as the Owner's Representative may allow in his or her sole discretion.

3. ASSIGNMENT AND SUBCONTRACTING

The Contract may not be assigned without the prior written consent of the Owner's Representative, and none of the Work may be sub-contracted by the Contractor without the prior written consent of the Owner's Representative, except to the extent, if any, the Contractor listed sub-contractors or suppliers in the Contractor's Bid and uses those sub-contractors or suppliers. Every sub-contract must incorporate all the terms and conditions of this Contract as far as reasonably applicable and with the necessary changes. Without limiting the generality of GC9, if the Contractor uses a sub-contractor or supplier not listed in the Contractor's Bid, the Owner's Representative may in his or her sole discretion terminate the Contract in accordance with GC9.

4. CONTROL OF WORK AND SUPERVISION

- 4.1** The Contractor is solely responsible for proper performance of the Work to Total Completion in accordance with GC2 and the rest of the Contract Documents and must effectively direct and supervise the Work so as to ensure Total Completion. Without limiting the generality of the foregoing, the Contractor is solely responsible for construction means, methods, techniques, sequences, and procedures and for coordinating the various parts of the Work during its performance. The Contractor must keep a qualified competent and experienced superintendent on the site of the Work at all times during the performance of the Work, unless otherwise authorized in writing by the Owner's Representative. The superintendent must supervise and direct performance of the Work in accordance with the Contract Documents. The superintendent must be qualified, competent and experienced and be acceptable to the Owner's Representative and must have the authority to receive on behalf of the Contractor any communication in respect of the Contract. Any superintendent or worker not acceptable to the Owner's Representative because of incompetence, improper conduct or security risk must be removed from the site of the Work and replaced at once if the Owner's Representative so requires.
- 4.2** The Contractor must at all times monitor the progress of the Work in relation to the Construction Schedule and must update the Construction Schedule whenever required by the Owner's Representative in order to ensure that Total Completion will be reached on or before the Completion Date. The Contractor must at all times keep the Owner's Representative informed as to the progress of the Work, including in relation to the Construction Schedule, and must provide the Owner's Representative with all records and documentation the Owner's Representative from time to time requires be provided in relation to performance of the Work and the Construction Schedule.
- 4.3** The Contractor must at all times keep the Work site neat and clean and, without limiting the generality of the foregoing, must daily remove all waste material that originates from the Work and dispose of it in accordance with all applicable enactments. After Total Completion, the Contractor must promptly remove from and around the Work site any waste materials, personal property and equipment and must leave the Work site neat, clean and in a safe condition.

5. COOPERATION WITH OTHER CONTRACTORS

The Contractor must cooperate fully with other contractors or workers sent onto the site of the Work by the Owner's Representative. If presence on the Work site of other Contractors and works could not have been reasonably foreseen by the Contractor when entering into the Contract, and if, in the opinion of the Owner's Representative, the Contractor has incurred additional expense by such action, and the Contractor has given written notice of claim within 30 days of such action, the Owner must pay the additional expense to the Contractor calculated in accordance with GC17.1.

6. OWNER'S REPRESENTATIVE

The Owner's Representative has the Owner's authority to act on the Owner's behalf with respect to the Contract and, without limiting the generality of the foregoing, the Owner's Representative is entitled:

- (a) to have access to and inspect the site of the Work, and the Work, at all times and the Contractor must provide the Owner's Representative with full information and assistance so the Owner's Representative may ensure that the Work is performed in accordance with the Contract,
- (b) to decide whether anything has been done as required by the Contract or to decide what the Contractor is required by the Contract to do, including questions as to the acceptability of the quality and quantity of any labour, equipment or material used in the Work and the timing and scheduling of the Work,
- (c) in the Owner's Representative's sole discretion, to order additional Work or dispense with or change all or any part of the Work,
- (d) for the purposes of progress payments and final payment, to determine the actual quantities of the Work, where the Contract is a unit price contract, and certify the amounts payable to the Contractor, and

- (e) if the Owner's Representative determines that the Contractor is not performing the Work in accordance with the Construction Schedule, or is otherwise not performing the Work in a manner that will permit Total Completion on or before the Completion Date, to give notice to the Contractor directing the Contractor to do everything necessary, including as may be specified in that notice, to expedite performance of the Work in order to reach Total Completion on or before the Completion Date.

The Contractor must comply with any determination, decision or direction of the Owner's Representative given under this section.

7. DELAY, NON-COMPLIANCE OR BREACH BY THE CONTRACTOR

- 7.1** If the Contractor delays in the commencement, performance or completion of the Work, fails to comply with a direction or decision of the Owner's Representative, or is otherwise in breach of the Contract, then, subject to **GCError! Reference source not found.**, the Owner's Representative may, at the Contractor's expense, do such things as the Owner's Representative deems necessary to correct the Contractor's breach, including by causing the Work to be performed by the Owner's forces or by another party. The Contractor must reimburse the Owner for all costs, expenses and damage incurred or sustained by the Owner by reason of the Contractor's breach or in correcting the breach.
- 7.2** If the Contractor's delay, failure or Contract breach continues for 5 days after notice of it has been given to the Contractor by the Owner's Representative and the Contractor is not, in the sole opinion of the Owner's Representative, diligently proceeding with a cure of the breach to the Owner's Representative's satisfaction, the Owner's Representative may, without it constituting termination of the Contract, take all or any part of the Work out of the Contractor's hands and may employ such means as the Owner's Representative considers desirable to perform the Work or part of it. The cost of performing the Work, or part of it, taken out of the Contractor's hands must be deducted from any balance of the Contract Price not yet payable to the Contractor. If the cost of performing the Work, or part of it, taken out of the Contractor's hands exceeds any balance of the Contract Price not yet paid, the excess is a debt due and owing by the Contractor to the Owner.
- 7.3** Without limiting the generality of **GCError! Reference source not found.**, if the Owner's Representative at any time determines that the Contractor is not performing the Work in accordance with the Construction Schedule, so that Total Completion will not be reached on or before the Completion Date, **GCError! Reference source not found.** applies.

8. INSPECTION AND REPLACEMENT

- 8.1** The Owner's Representative may inspect or test the Work performed under the Contract at any time. The Contractor must give the Owner's Representative sufficient notice of any approaching stage of the Work that could prevent the Owner's Representative from inspecting or testing the Work, in order to enable the Owner's Representative to properly inspect or test the Work. Whenever required by the Owner's Representative, the Contractor must open up and expose any part of the Work for inspection or testing.
- 8.2** The Owner's Representative may require the Contractor to submit clearly marked samples and test specimens of equipment or materials intended to be incorporated, or incorporated in the Work in the quantity and size necessary to allow proper inspection and testing of the samples and specimens. The Contractor must whenever required by the Owner's Representative deliver the manufacturer's specifications and any other information respecting the equipment or materials the Contractor intends to incorporate in the Work.
- 8.3** The obligations of the Contractor under the Contract are not affected by any inspection, testing or acceptance of equipment or materials by the Owner's Representative or by the failure of the Owner's Representative to inspect or test equipment or materials.
- 8.4** Without affecting GC14, the Contractor must promptly, on the direction of the Owner's Representative:
- (a) remove and replace, or remove and modify, any part of the Work that the Owner's Representative determines is not in accordance with the Contract, in order to make it in accordance with the Contract;
 - (b) restore all Work, and the work of others, that is disturbed or damaged in the course of removal, replacement or modification of unsatisfactory Work; and

(c) bear all risks and expenses connected with performance by the Contractor of any acts under GC8.4(a) or (b), or both.

8.5 If the Owner's Representative determines that the Contractor has not performed its obligations under GC8.4 promptly, the Owner may perform those obligations at the expense of the Contractor and the Owner's costs of doing so shall be a debt due and owing by the Contractor to the Owner.

9. SUSPENSION OR TERMINATION OF CONTRACT

9.1 The Owner's Representative may upon notice to the Contractor suspend the Contract at any time for convenience and the Contractor must comply with that notice immediately by ceasing performance of the Work. Upon ceasing performance of the Work, the Contractor must take all steps reasonably necessary to protect all portions of the Work from damage or destruction by natural or human causes. If the Owner's Representative suspends the Work for 30 days or less, the Contractor must complete the Work when called upon to do so. If the Owner's Representative suspends the Work for a period in excess of 30 days, the Contractor may request the Owner to terminate the Contract and GC9.2 applies.

9.2 Despite the rest of the Contract, the Owner may terminate the Contract for convenience, in the Owner sole discretion, or the Owner may terminate the Contract for cause, because of any breach of the Contract by the Contractor, the insolvency of the Contractor, or the commission of an act of bankruptcy by the Contractor. If the Owner terminates the Contract for cause, the obligation of the Owner to make payments to the Contractor ceases and no further payment is due to the Contractor unless the Owner's Representative certifies that the payment is a progress payment due and owing to the Contractor in accordance with GC18, in which case that GC applies, but the Owner is still entitled to deduct from any such payment any damages or loss caused to the Owner by the Contractor's breach of the Contract, insolvency or bankruptcy. Termination under this GC does not relieve the Contractor of any Contract obligations other than the Contractor's obligation to complete the Work. If the Owner terminates the Contract for cause, the Owner may complete the Work as the Owner's Representative considers desirable and all costs and damages incurred by the Owner to complete the Work must be paid by the Contractor to the Owner at once on demand.

10. BOND NOTICE

10.1 If a labour and material payment bond is required under the Contract, the Contractor must post on the site of the Work a notice of the bond's existence, which must include the name and address of the surety, a definition of the persons protected by the bond and an outline of the procedure for submitting a claim.

11. RECORDS TO BE KEPT

11.1 The Contractor must throughout performance of the Work, and for a period of two years from the date of issuance of the Certificate of Total Completion, maintain and keep full documentation (including accounts) and information in respect of the performance of, and the Contractor's estimates of actual costs of, the Work and make them available for copy, audit or inspection by any persons acting on behalf of the Owner.

12. EXTENSION OF TIME

12.1 The Owner's Representative may, in the Owner's Representative's sole discretion, at the request of the Contractor before the Completion Date extend the time for Total Completion. Whether or not the Owner's Representative grants an extension, the Contractor must, except to the extent that the Owner's Representative determines that the need for an extension was due to causes beyond the reasonable control of the Contractor, pay to the Owner:

- (a) an amount equal to inspection costs relating to the Work incurred by the Owner after the original Completion Date; and
- (b) compensation for any cost, loss or damage to the Owner caused by failure of the Contractor to complete the Work by the original Completion Date.

13. CERTIFICATE OF SUBSTANTIAL COMPLETION

13.1 The Owner's Representative shall, not later than 10 days after a written application from the Contractor for a Certificate of Substantial Completion, inspect and assess the Work to verify the validity of the application and either:

- (a) issues the Certificate of Substantial Completion; or

(b) if the Owner's Representative decides that Substantial Completion has not been achieved, consult with the Contractor and advise the Contractor of the Work required to achieve Substantial Completion.

13.2 The Contractor may, after performing the Work required under GC13.1(b), reapply for the Certificate of Substantial Completion and the provisions of GC13.1 shall apply to the reapplication.

13.3 Before applying for the Certificate of Substantial Completion, the Contractor, in consultation with the Owner's Representative, shall confirm the matters remaining to be completed and timing of them so as to achieve Total Completion.

14. WARRANTY AND RECTIFICATION OF DEFECTS

14.1 The Contractor warrants and guarantees to the Owner that the Work is free from all defects arising from faulty construction, manufacturing, installation, materials or workmanship which appear within 12 months after the date on which the Certificate of Total Completion is issued or such longer period, but not shorter, as may be specified in the Contract Documents. The Contractor must, promptly after notice from the Owner's Representative, and within such time as is specified in that notice, rectify at the Contractor's risk and expense any defects or faults which appear in the Work within 12 months after the date on which the Certificate of Total Completion is issued or such longer period, but not shorter, as may be specified in the Contract Documents. The Contractor warrants and guarantees that any remedial work performed under this section is free from all defects arising from faulty construction, manufacturing, installation, materials or workmanship and the rest of this GC applies, with the necessary changes, to remedial work.

15. WORK CHANGES

15.1 At any time after the Notice of Award, but before issuance of the Certificate of Substantial Completion, the Owner's Representative may give notice to the Contractor ordering the Contractor to perform a Work Change and the Contractor must promptly after the notice is given begin performance of that Work Change and prosecute it to Total Completion in accordance with the notice.

15.2 Any Work Change is, for all purposes of the Contract, considered to be part of the Work and all of the provisions of the Contract apply to that Work Change.

15.3 The Contractor is entitled to be paid for any Work Change that is an addition to or revision of the Work, but not any Work Change which is a deletion from the Work. The Contractor is entitled to be paid for any Work Change in accordance with the GC16.2(b).

16. PRICE CALCULATION AND ADJUSTMENTS

16.1 The Contractor acknowledges and agrees that quantities of the Work set out in the Contract Documents are estimates only and that the Owner has made no representation, and gives no warranty or covenant, that the actual quantities of Work performed by the Contractor will be the same as those estimated.

16.2 If the Contract is a unit price contract:

- (a) the amount payable to the Contractor for the Work is to be calculated by multiplying the unit prices set out in the Bid Form by the actual quantities of Work of such units as certified by the Owner's Representative in the certificate of measurement,
- (b) the Owner and the Contractor may, by agreement in writing,
 - (i) add to the unit price items in the Bid Form other items of Work, classes of labour, units of measure, estimated quantities or prices per unit, and
 - (ii) if the actual quantities certified by the Owner's Representative exceed or are less than the estimated quantities in respect of any unit price item shown in the Bid Form by more than 20%, amend the unit prices for such items, but if the actual quantities exceed or are less than the estimated quantities by more than 20%, any amendment to the unit prices applies only to the actual quantities in excess of or less than 120% of the estimated quantities,
- (c) where the Owner's Representative and the Contractor fail to agree on the amount of any adjustment as contemplated by this GC, the revised or new prices per unit must be determined in accordance with GC17,

- (d) the Contractor is entitled to be paid for any Work Change in accordance with unit prices set out in the Bid Form for the items of Work within the Work Change, with the Owner's Representative being responsible for certification of actual quantities of those unit prices performed in the Work Change as provided in GC13. If the unit price items in the Bid Form do not contain items of Work, classes of labour, or units of measure, contained in the Work Change, GC16.2(b) applies; and
- (e) the Contractor is entitled to be paid for excavation of any material only to neat lines of excavation as stipulated in the Specifications.

16.3 If the Contract is a lump sum contract:

- (a) the amount payable to the Contractor for the Work is the lump sum set out the Bid Form, and
- (b) if the Contractor is ordered to perform a Work Change, the amount payable to the Contractor for performance of the Work Change is to be the amount agreed upon by the Owner and the Contractor, but if the Owner and the Contractor cannot agree on that amount, the amount payable is to be the total of the reasonable and proper costs incurred, or legally payable, by the Contractor directly attributable to Completion of the Work Change, as certified by the Owner's Representative, plus 10% of those costs to cover profit and overhead, including finance and interest charges.

17. NO ADDITIONAL PAYMENTS

- 17.1** No amount in addition to the Contract price determined under GC16 is payable to the Contractor in respect of performance of the Work and the Contract unless these General Conditions expressly provide otherwise. If these General Conditions expressly provide otherwise, any such amount must, if the Contract is a unit price contract, be based on the unit prices set out in the Bid Form, with the amount not to exceed that calculated by multiplying the relevant unit prices by actual quantities of Work, as certified by the Owner's Representative. Where the amount is in respect of delay caused to the Contractor by neglect or delay by the Owner, the Owner's Representative and the Contractor may agree on the amount payable. Failing such agreement, the amount payable is to be the total reasonable and proper costs incurred, or legally payable, by the Contractor directly attributable to the matter in question, as certified by the Owner's Representative, plus 10% of those costs to cover profit and overhead, including finance and interest charges.
- 17.2** The amount payable to the Contractor under the Contract must not be increased or decreased because of any increase or decrease in the cost of the Work brought about by an increase or decrease in the cost of equipment, services, labour or materials, except if any tax or levy that affects the cost of any materials incorporated in or to be incorporated in the Work imposed under the *Excise Act* (Canada), the *Excise Tax Act* (Canada), the *Old Age Security Act* (Canada), the *Customs Act* (Canada) Tariff, or the *Social Services Tax Act* (British Columbia) is made public after the Bid closing time an appropriate adjustment may be made in the Owner's sole discretion.

18. PAYMENTS

- 18.1** If the Contract price is \$5,000.00 or less, the Contractor is entitled to payment only after the Certificate of Substantial Completion has been issued.
- 18.2** If the Contract price exceeds \$5,000.00, the Contractor is entitled to receive progress payments by submitting progress claims at monthly intervals, which must be approved by progress payment certificates issued by the Owner's Representative at monthly intervals. The Owner's Representative must not issue a progress payment certificate unless the Contractor's progress claim is accompanied by a statutory declaration sworn by a knowledgeable person on behalf of the Contractor, and by any further proof the Owner's Representative may require in the Owner's Representative's sole discretion, that all financial obligations, debts and payments

payable by the Contractor in respect of the part of the Work that has been performed to the date of the Contractor's progress claim have been fully paid and that the Contractor is not aware of any actual or possible claims of builder's lien or other claims in respect of that part of the Work. The Contractor's progress claim must also be accompanied by proof satisfactory to the Owner's Representative, in the Owner's Representative's sole discretion, that all assessments payable by the Contractor to the Workers' Compensation Board of British Columbia are fully paid up to the last required payment and that all remittances due to the Government of Canada under the *Income Tax Act* (Canada) are current up to the last required payment. The statutory declaration must be in the form set out in Appendix A to these GCs. If the statutory declaration is not provided, and in that form, the Contractor is not entitled to any payment.

- 18.3** The Owner shall deduct from each progress payment to be made to the Contractor a holdback pursuant to and in the amount required by the *Builders Lien Act* (British Columbia).
- 18.4** The amount of a progress claim becomes due and payable to the Contractor 40 days after receipt by the Owner's Representative of the progress claim, but only if the Contractor has complied with GC18.2.
- 18.5** Despite the rest of the Contract, the holdback amounts under GC18.3, becomes due and payable to the Contractor 55 days after the date of the Certificate of Substantial Completion, but only if the Contractor has submitted to the Owner's Representative a statutory declaration sworn by a knowledgeable person on behalf of the Contractor, and any further proof the Owner's Representative may require in the Owner's Representative's sole discretion, that all financial obligations, debts and payments payable by the Contractor in respect of the part of the Work that has been performed to the date of the Contractor's claim have been fully paid and that the Contractor is not aware of any actual or possible claims of builder's lien or other claims in respect of that part of the Work. The Contractor's claim must also be accompanied by proof satisfactory to the Owner's Representative, in the Owner's Representative's sole discretion, that all assessments payable by the Contractor to the Workers Compensation Board of British Columbia are fully paid up to the last required payment and that all remittances due to the Government of Canada under the *Income Tax Act* (Canada) are current up to the last required payment. The statutory declaration must be in the form set out in Appendix B to these GCs. If the statutory declaration is not provided, and in that form, the Contractor is not entitled to any payment.

- 18.6** Notwithstanding any other provisions of this Contract, no payment is payable to the Contractor under this GC18 if a claim of builder's lien has been made, or is in reasonable prospect, or proceedings have been commenced to enforce a lien against the holdback, before expiry of the 55 day holdback period under GC18.5, in which case the Contractor must do everything necessary, at the Contractor's expense, including by institution and prosecution of legal proceedings, to obtain the discharge of any claim of builder's lien, *lis pendens* or other encumbrance from title to any land upon which the Work is located and the provisions of the *Builders Lien Act* (British Columbia), and any successor legislation, apply with respect to the holdback.
- 18.7** The Owner may avail itself to all rights under the *Builders Lien Act* (British Columbia), including regarding the payment of the holdback or other monies retained by the Owner from the Contractor into Court in order to discharge any claim of lien or lien related certificate of pending litigation or judgment and the Contractor will pay the Owner's costs of doing so and such costs shall be a debt due and owing by the Contractor to the Owner.
- 18.8** Delay by the Owner in making a payment is not a breach of the Contract, but, subject to the rest of this GC18, if payment of any progress payment under this GC18 is not made when due, the Contractor is entitled to interest on the amount overdue and the Owner must, when making payment of the amount overdue, pay to the Contractor interest on the amount overdue, calculated for the period of the delay at the Royal Bank of Canada's prime commercial rate of interest then in effect.
- 18.9** Without affecting any other right or remedy the Owner may have against the Contractor, the Owner may set off and deduct from amounts payable or accruing due to the Contractor, including any holdback, an amount equivalent to:
- (a) any expense, loss or damage caused to the Owner by any breach of the Contract by the Contractor;

- (b) any expense, loss or damage caused to the Owner by any breach by the Contractor of another contract with the Owner or by any legal wrong of the Contractor;
- (c) any debt owed to the Owner by the Contractor, and the Contractor agrees that if, in accordance with the Contract, the Owner performs an obligation of the Contractor under the Contract, the expense to the Owner of doing so is considered for all purposes, including this GC, to be a debt owed to the Owner by the Contractor.

18.10 For the purposes of the Contract, the Owner's Representative is the "payment certifier", within the meaning of the *Builders Lien Act* (British Columbia).

19. CERTIFICATE OF TOTAL COMPLETION

- 19.1** The Contractor shall ensure that all Work is protected until the issuance of the Certificate of Total Completion and shall be responsible for the correction of defaults in the Work regardless of whether or not they were apparent when the Certificate of Substantial Completion was issued.
- 19.2** Total Completion shall not be attained until the Contractor has removed all products, materials, equipment and waste other than that caused by the Owner and leave the Work site clean and suitable for occupancy and use by the Owner, unless otherwise specified in the Contract Documents or directed by the Owner's Representative.
- 19.3** Upon achieving Total Completion, the Contractor may apply for a Certificate of Total Completion and the procedure and requirement for the issuance of the Certificate shall be as set out in the GC13.

20. INDEMNIFICATION

20.1 The Contractor must indemnify and hold harmless the Owner, its elected officials, officers, agents and employees (including the Owner's Representative), from and against all liabilities, losses, damages, personal injury, death, property loss or damage, actions, causes of action, costs (including legal fees and costs) or expenses in connection with loss of, or damage or injury (including death) to, any person or property that occurs in the course of the performance of the Contract, whether suffered, incurred or made by the Contractor or an employee of the Contractor or by a third person and whether or not caused through a wilful or negligent act or omission or other actionable wrong of the Contractor, its officers, agents, employees, or subcontractors, or any of their officers, agents or employees, and at its expense the Contractor must defend any and all actions and pay all damages and legal costs and other costs arising there from.

21. PROPERTY OF THE OWNER

21.1 The Contractor is responsible for any loss of or damage to, excluding reasonable wear and tear, any property of the Owner arising out of the performance of the Contract.

22. BYLAWS AND PERMITS

22.1 The Contractor must comply with all statutes, laws and regulations relating to, and obtain all permits and licences required for, the Work, whether federal, provincial or municipal.

23. WORKPLACE SAFETY AND ENVIRONMENTAL MATTERS

23.1 Without limiting the Contractor's obligations under GC22, the Contractor must:

- (a) Comply with all applicable enactments respecting workplace health and safety, including the *Workers Compensation Act* (British Columbia) and regulations, policies and orders under it, and the Workplace Hazardous Materials Information System; and
- (b) Perform the Work in accordance with all applicable enactments respecting environmental protection, including soils contamination and, without limiting the generality of the foregoing, the Contractor must do everything reasonably necessary to ensure that the Work is performed in such a way as to avoid and prevent any disturbance or damage to the environment.

23.2 If the Contractor is a "head contractor", as defined in the *Builders Lien Act* (British Columbia), the Contractor will be the "prime contractor" for the Work site under the *Workers Compensation Act* (British Columbia) and must fulfill all obligations of the "prime contractor" under that Act, including by ensuring that the activities of any employers, workers and other persons at the Work site relating to occupational health and safety are coordinated and by doing everything that is reasonably practicable to establish and maintain the system or process that will ensure compliance with Part 3 of the *Workers Compensation Act* and the regulations under that Act applicable to the Work site.

24. INSURANCE

24.1 Without in any way limiting the obligations or liabilities of the Contractor under the Contract, the Contractor must maintain and keep in force throughout the Contract until issuance of the Certificate of Total Completion, with an insurance company or companies and under policies of insurance acceptable to the Owner, the following insurance:

- (a) The Contractor must maintain and keep in force throughout the Contract until the date of final payment, liability insurance on all motor vehicles and motorized equipment used in connection with the Work under this Contract, whether owned by the Contractor or subcontractor or not in an amount of not less than \$2,000,000.00. The per claim deductible under any insurance required under this section must not exceed \$5,000.00. The insurance must include any liability assumed under the Contract.
- (b) The Contractor must maintain and keep in force until the date of final payment public liability and property damage insurance, in an amount of not less than \$2,000,000.00 per claim, against liabilities or damages in respect of injuries to persons (including injuries resulting in death), and in respect of property loss or damage, arising out of the performance of the Work. The per claim deductible under any insurance required under this section must not exceed \$5,000.00. The insurance must include any liability assumed under the Contract.
- (c) The Contractor must maintain and keep in force until the date of final payment builder's risk insurance, including for loss of use, in addition to such insurance as the Contractor elects to carry for the Contractor's own protection against physical loss or damage to the Work in an amount of not less than \$5,000.00. The per claim deductible under any insurance required under this section must not exceed \$5,000.00. The insurance must include any liability assumed under the Contract.

- (d) If the Contractor proposes to use waterborne equipment to carry out the Work, the following insurance is also required:
- (i) Direct damage insurance on hulls and machinery for full value, subject to Canadian Hulls Pacific Clauses 1974, or equivalent, and
 - (ii) Broad form protective and indemnity insurance (SP23 or equivalent) including full towers liability, pollution liability and collision liability in an amount of not less than \$2,000,000.00 any one accident or occurrence.
- (e) The Owner and its officials and employees must be named insured under all insurance policies. The insurance must preclude subrogation claims by the insurer against anyone insured under it. In addition, all insurance policies must include a waiver of cross liability as follows:
- “The insurance afforded by this insurance shall apply in the same manner to each named insured as though separate policies were issued to each of them, including in respect of any action brought against any of the named insured by or on behalf of any other named insured”.
- (f) All insurance policies must contain an endorsement to provide all named insureds with prior notice of changes and cancellations. Such endorsement must be in the following form:
- “It is understood and agreed that the coverage provided by this insurance will not be changed or amended in any way or cancelled until thirty (30) days after written notice of such change or cancellation shall have been given or sent by registered mail to all named insureds”.

- (g) The Contractor must, before beginning the Work, submit to the Owner certificates of the insurance required under this GC and must also provide to the Owner, from time to time if and when required by the Owner, satisfactory proof that all such insurance is still in full force and effect and that all premiums have been paid.
- (h) The Contractor must not do or permit anything to be done which would render any insurance void or voidable or which would cause an increase in the insurance premiums.
- (i) If the Contractor fails to keep and maintain insurance required by this GC, the Owner may, in its sole discretion, either terminate the Contract by notice to the Contractor or may perform the Contractor's obligation to keep and maintain that insurance, and the cost to the Owner of doing so is a debt due and owing by the Contractor to the Owner. The Owner may terminate the Contract by notice given to the Contractor if the Contractor fails to deliver any certificate of insurance, or any proof that insurance is still in full force and effect.

25. NOTICE

- 25.1** Any notice, direction, demand, approval, certificate or waiver which may be or is required to be given under the Contract must be in writing and be delivered or sent by facsimile transmission either to the address or facsimile number given for each party in the Bid Form or to the Contractor's superintendent of the Work.
- 25.2** Any notice, direction, demand, approval, certificate or waiver that is delivered is to be considered to have been given on the next business day after it is dispatched for delivery. Any notice, direction, demand, approval, certificate or waiver that is sent by fax transmission is to be considered to have been given on the day it is sent. If a party changes its address or facsimile number, or both, it must promptly give notice of its new address or facsimile number, or both, to the other party as provided in this GC25.

26. TIME

26.1 Time is of the essence of the Contract. In calculating time for the purposes of the Contract, the first day is to be excluded and the last day included.

27. DELAY

27.1 If, after performance of the Work has begun, war, insurrection, riot or other civil disturbance, act of God or force of nature, but no other event or circumstance, prevents the Contractor from performing the Contract, the Contractor may give notice to the Owner's Representative seeking an extension of the Completion Date. The Owner's Representative may, in the Owner's Representative's sole discretion, extend the Completion Date in response to that notice.

28. WAIVER

28.1 An alleged waiver of any breach of the Contract is effective only if it is an express waiver in writing of the breach. A waiver of a breach of the Contract does not operate as a waiver of any other breach of the Contract.

29. SUCCESSORS

29.1 The Contract binds the parties to it and their respective successors, heirs, executors, administrators and permitted assigns.

30. JOINT AND SEVERAL OBLIGATIONS

30.1 The obligations of the Contractor under the Contract are the joint and several obligations of each of the persons who have submitted the Bid as the Bidder or as members of a joint venture or partnership comprising the Bidder.

31. APPLICABLE LAW

31.1 The Owner and the Contractor agree that the Contract is to be interpreted in accordance with, and governed by, the law in force in British Columbia and the Contractor irrevocably submits to the jurisdiction of the courts of British Columbia.

APPENDIX A
Progress Payment Statutory Declaration

CANADA)	IN THE MATTER OF the <i>BUILDERS LIEN ACT</i> and IN THE MATTER
)	OF A CONTRACT BETWEEN THE TOWN OF OLIVER AND _____
BRITISH COLUMBIA)	
)	TO: THE TOWN OF OLIVER IN THE MATTER OF: _____
)	_____
)	_____
)	

I, _____, of _____, British Columbia, DO SOLEMNLY DECLARE THAT:

1. I am the _____ of _____ the contractor with respect to construction of _____ at _____.

2. All claims and obligations for wages, services, materials, and otherwise, with respect to the above contract to date have been fully paid and satisfied.

3. All assessments, penalties and any other amounts payable by the above contractor to the Workers Compensation Board of British Columbia are fully paid up to the last required payment, all remittances due to the Government of Canada under the *Income Tax Act* (Canada) with respect to the withholding of income tax at source from employees of the above contractor are current up to the last required payment and all other statutory remittances to any government or government agency are current up to the last required payment.

4. There are no persons entitled at this time to file a claim of builder's lien in respect of the above contract or entitled to any such lien.

5. This declaration is made for the purpose of inducing the Town of Oliver to pay funds and I am aware that in making such payment the Town of Oliver will be relying on the statements herein contained.

6. I am authorized to, and do, make this declaration on behalf of the contractor named above.

7. By delivering this declaration to the Town of Oliver, the above contractor irrevocably and absolutely waives and releases any further remuneration, consideration, damages, losses or other payment by or from the Town of Oliver to the above contractor with respect to the Work under the above contract to the date hereof, unless otherwise expressly claimed in writing in an appendix hereto.

AND I make this solemn declaration, conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of the *Evidence Act* (British Columbia).

DECLARED BEFORE ME AT _____ in the Province of)	
British Columbia this ___ day of _____, 20__.)	
)	
_____)	_____
A Commissioner for taking Affidavits in British Columbia)	

APPENDIX B
Final Payment Statutory Declaration

CANADA)	IN THE MATTER OF the <i>BUILDERS LIEN ACT</i> and IN THE MATTER
)	OF A CONTRACT BETWEEN THE TOWN OF OLIVER AND _____
BRITISH COLUMBIA)	
)	TO: THE TOWN OF OLIVER IN THE MATTER OF: _____
)	_____
)	

I, _____, of _____, British Columbia, DO SOLEMNLY DECLARE THAT:

1. I am the _____ of _____ the contractor with respect to construction of _____ at _____.
2. All claims and obligations for wages, services, materials, and otherwise, with respect to the above contract to date have been fully paid and satisfied.
3. All assessments, penalties and any other amounts payable by the above contractor to the Workers Compensation Board of British Columbia are fully paid up to the last required payment, all remittances due to the Government of Canada under the *Income Tax Act* (Canada) with respect to the withholding of income tax at source from employees of the above contractor are current up to the last required payment and all other statutory remittances to any government or government agency are current up to the last required payment.
4. There are no persons entitled at this time to file a claim of builder's lien in respect of the above contract or entitled to any such lien.
5. The construction of improvements under the above contract reached substantial completion, determined for the purposes of the *Builders Lien Act* (British Columbia), on _____, 20__.
6. By delivering this declaration to the Town of Osoyoos, the above contractor irrevocably and absolutely waives and releases any further remuneration, consideration, damages, losses or other payment by or from the Corporation of the Town of Oliver to the above contractor with respect to the Work under the above contract.
7. This declaration is made for the purpose of inducing the Town of Oliver to pay funds and I am aware that in making such payment Town of Oliver will be relying on the statements herein contained.
8. I am authorized to, and do, make this declaration on behalf of the contractor named above. AND I make this solemn declaration, conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of the *Evidence Act* (British Columbia).

DECLARED BEFORE ME AT _____, British Columbia,)	
this ___ day of _____, 20__.)	
)	
_____)	_____
A Commissioner for taking Affidavits in British Columbia)	

SUMMARY OF WORK

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 – Submittal Procedures.
- .2 Section 01 74 11 – Cleaning.
- .3 Section 01 77 00 – Closeout Procedure.
- .4 Section 01 78 00 – Manual.
- .5 Section 26 05 01 – Electrical General Provisions.
- .6 Section 26 05 21 – Wires and Cables.
- .7 Section 26 05 26 – Ground and Bonding.
- .8 Section 26 05 34 – Conduits.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Supply and installation of new photovoltaic solar panels on the roof of the firehall truck bays
- .2 Supply and install the racking c/w mounts to Varco Pruden SSR roof. Seams run East-West, so base tender will be for a flat (0 tilt) system. A ballast mounted system will not be accepted.
- .3 Supply and install 9kW and 14.4kW 120/208V 3-phase Solar Edge inverters at existing electrical room, c/w tie in to spare breakers at bottom of existing panels. SolarEdge has been selected for superior safety features and monitoring.
- .4 Supply and install all conduits, wires, combination/recombination boxes required to complete the system.
- .5 Perform all work to Canadian Electrical Code and obtain permit from Technical Safety BC in order to perform installation.
- .6 Perform Net Metering application to FortisBC on behalf of Town of Oliver. Town of Oliver to supply information to contractor as required.
- .7 Sites to be restored to original conditions after installation.

SUMMARY OF WORK

- .8 Configure SolarEdge monitoring portal on behalf of Town of Oliver c/w Town of Oliver name and logo. The Town shall be provided with administrator access to the configuration of the portal.
- .9 Optional tender item – supply additional panels – up to 8kW (for a total of 32kW).
- .10 Optional tender item – supply tilt mount – bidder to specify angle.

1.3 CONTRACT METHOD

- .1 Construct Work under stipulated price contract.
- .2 Relations and responsibilities between Contractor and subcontractors assigned by Owner are as defined in Conditions of Contract. Assigned Subcontractors must, in addition:
 - .1 Furnish to Contractor, bonds covering faithful performance of subcontracted work and payment of obligations there under when Contractor is required to furnish such bonds to Consultant.
 - .2 Purchase and maintain liability insurance to protect Contractor from claims for not less than limits of liability which Contractor is required to provide to Consultant.

1.4 WORK BY OTHERS

- .1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Consultant.
- .2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Consultant, in writing, any defects which may interfere with proper execution of Work.

1.5 CONTRACTOR USE OF PREMISES

- .1 Unrestricted use of site until Substantial Performance.
- .2 Limit use of premises for Work, for storage, and for access, to allow:
 - .1 Owner occupancy.
 - .2 Partial owner occupancy.
 - .3 Work by other contractors.
 - .4 Public usage.
- .3 Co-ordinate use of premises under direction of Consultant.
- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

SUMMARY OF WORK

- .5 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .6 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Consultant.
- .7 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.6 OWNER OCCUPANCY

- .1 Owner will occupy premises during entire construction period for execution of normal operations.
- .2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage of existing systems.

1.7 OWNER FURNISHED ITEMS

- .1 Owner Responsibilities:
 - .1 Arrange for delivery of shop drawings, product data, samples, manufacturer's instructions, and certificates to Contractor.
 - .2 Deliver supplier's bill of materials to Contractor.
 - .3 Arrange and pay for delivery to site in accordance with Progress Schedule.
 - .4 Inspect deliveries jointly with Contractor.
 - .5 Submit claims for transportation damage.
 - .6 Arrange for replacement of damaged, defective or missing items.
 - .7 Arrange for manufacturer's field services; arrange for and deliver manufacturer's warranties and bonds to Contractor.
- .2 Contractor Responsibilities:
 - .1 Designate submittals and delivery date for each product in progress schedule.
 - .2 Review shop drawings, product data, samples, and other submittals. Submit to Consultant notification of observed discrepancies or problems anticipated due to non-conformance with Contract Documents.
 - .3 Receive and unload products at site.
 - .4 Inspect deliveries jointly with Owner; record shortages, and damaged or defective items.
 - .5 Handle products at site, including uncrating and storage.
 - .6 Protect products from damage, and from exposure to elements.
 - .7 Assemble, install, connect, adjust, and finish products.
 - .8 Provide installation inspections required by public authorities.

SUMMARY OF WORK

- .9 Repair or replace items damaged by Contractor or subcontractor on site (under his control).

1.8 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance to building operations occupants, public and normal use of premises. Arrange with Consultant to facilitate execution of work.
- .2 Notify, Consultant and utility companies of intended interruption of services and obtain required permission.
- .3 Where Work involves breaking into or connecting to existing services, give Consultant 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to vehicular traffic and tenant operations.
- .4 Provide alternative routes for personnel and vehicular traffic.
- .5 Establish location and extent of service lines in area of work before starting Work. Notify Consultant of findings.
- .6 Submit schedule to and obtain approval from Consultant for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .7 Provide temporary services when directed by Consultant to maintain critical building and tenant systems.
- .8 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .9 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.

1.9 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.

SUMMARY OF WORK

- .8 Field Test Reports.
- .9 Copy of Approved Work Schedule.
- .10 Health and Safety Plan and Other Safety Related Documents.
- .11 Other documents as specified.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

SUBMITTAL PROCEDURES

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 74 11 – Cleaning.
- .3 Section 01 77 00 – Closeout Procedure.
- .4 Section 01 78 00 – Manual.
- .5 Section 26 05 01 – Electrical General Provisions.
- .6 Section 26 05 21 – Wires and Cables.
- .7 Section 26 05 26 – Ground and Bonding.
- .8 Section 26 05 34 – Conduits.

1.2 ADMINISTRATIVE

- .1 Submit to Consultant submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Consultant This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.

SUBMITTAL PROCEDURES

- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.
- .10 Keep one reviewed copy of each submission on site.

1.3 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .3 Allow 30 days for Consultant's review of each submission.
- .4 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .5 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of revisions other than those requested.
- .6 Accompany submissions with transmittal letter, in duplicate, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .7 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.

SUBMITTAL PROCEDURES

- .2 Supplier.
- .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
- .8 After Consultant's review, distribute copies.
- .9 Submit 4 prints of shop drawings for each requirement requested in specification Sections and as Consultant may reasonably request.
- .10 Submit 4 copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Consultant where shop drawings will not be prepared due to standardized manufacture of product.
- .11 Submit 4 copies of test reports for requirements requested in specification Sections and as requested by Consultant.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .12 Submit 4 copies of certificates for requirements requested in specification Sections and as requested by Consultant.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.

SUBMITTAL PROCEDURES

- .13 Submit 4 copies of manufacturers instructions for requirements requested in specification Sections and as requested by Consultant.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .14 Submit 4 copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Consultant.
 - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .15 Submit 4 copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Consultant.
- .16 Delete information not applicable to project.
- .17 Supplement standard information to provide details applicable to project.
- .18 If upon review by Consultant, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.4 SAMPLES

- .1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Consultant's business address.
- .3 Notify Consultant in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.
- .6 Make changes in samples which Consultant may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

SUBMITTAL PROCEDURES

1.5 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

CLEANING

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 33 00 – Submittal Procedures.
- .3 Section 01 77 00 – Closeout Procedure.
- .4 Section 01 78 00 – Manual.
- .5 Section 26 05 01 – Electrical General Provisions.
- .6 Section 26 05 21 – Wires and Cables.
- .7 Section 26 05 26 – Ground and Bonding.
- .8 Section 26 05 34 – Conduits.

1.2 REFERENCES

- .1 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions "C", In Effect as Of: May 14, 2004.

1.3 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site containers for collection of waste materials and debris.
- .5 Dispose of waste materials and debris at designated dumping areas off site.
- .6 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

CLEANING

- .7 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .8 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .9 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .10 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.4 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Owner or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Consultant. Do not burn waste materials on site, unless approved by Consultant.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .8 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, floors.
- .9 Clean lighting reflectors, lenses, and other lighting surfaces.
- .10 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .11 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .12 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

CLEANING

- .13 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .14 Remove dirt and other disfiguration from exterior surfaces.
- .15 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .16 Sweep and wash clean paved areas.
- .17 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .18 Clean roofs, downspouts, and drainage systems.
- .19 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

CLOSEOUT PROCEDURE

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 33 00 – Submittal Procedures.
- .3 Section 01 74 11 – Cleaning.
- .4 Section 01 78 00 – Manual.
- .5 Section 26 05 01 – Electrical General Provisions.
- .6 Section 26 05 21 – Wires and Cables.
- .7 Section 26 05 26 – Ground and Bonding.
- .8 Section 26 05 34 – Conduits.

1.2 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-94, Stipulated Price Contract.

1.3 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Contractor and Subcontractors: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Consultant in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Consultant's Inspection.
- .2 Consultant's Inspection: Consultant and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.
- .3 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Equipment and systems have been tested, and are fully operational.
 - .4 Certificates required have been submitted.

CLOSEOUT PROCEDURE

- .5 Operation of systems have been demonstrated to Owner's personnel.
- .6 Work is complete and ready for final inspection.
- .4 Final Inspection: when items noted above are completed, request final inspection of Work by Consultant and Contractor. If Work is deemed incomplete by Owner and Consultant, complete outstanding items and request re-inspection.
- .5 Declaration of Substantial Performance: when Consultant considers deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Substantial Performance.
- .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance shall be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
- .7 Final Payment: when Consultant considers final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed, make application for final payment. If Work is deemed incomplete by Consultant, complete outstanding items and request reinspection.

1.4 CLEANING

- .1 In accordance with Section 01 74 11 - Cleaning.
- .2 Remove waste and surplus materials, rubbish and construction facilities from the site.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Executionnot Used

- .1 Not Used.

END OF SECTION

MANUAL

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 33 00 – Submittal Procedures.
- .3 Section 01 74 11 – Cleaning.
- .4 Section 01 77 00 – Closeout Procedure.
- .5 Section 26 05 01 – Electrical General Provisions.
- .6 Section 26 05 21 – Wires and Cables.
- .7 Section 26 05 26 – Ground and Bonding.
- .8 Section 26 05 34 – Conduits.

1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Copy will be returned after final inspection with Consultant's comments.
- .4 Revise content of documents as required prior to final submittal.
- .5 Two weeks prior to Substantial Performance of the Work, submit to the Consultant, final copies of operating and maintenance manuals in English.
- .6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .7 Furnish evidence, if requested, for type, source and quality of products provided.
- .8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .9 Pay costs of transportation.

MANUAL

1.3 AS-BUILTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at site for Consultant one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Consultant.

1.4 EQUIPMENT AND SYSTEMS

- .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.

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- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Additional requirements: as specified in individual specification sections.

1.5 MATERIALS AND FINISHES

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-Protection and Weather-Exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

1.6 SPARE PARTS

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

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1.7 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Consultant. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.8 STORAGE, HANDLING AND PROTECTION

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Remove and replace damaged products at own expense and to satisfaction of Consultant.

1.9 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Consultant approval.
- .3 Warranty management plan to include required actions and documents to assure that Owner receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Consultant for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

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- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Co-execute submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Provide list for each warranted equipment, item, feature of construction or system indicating:
 - .1 Name of item.
 - .2 Model and serial numbers.
 - .3 Location where installed.
 - .4 Name and phone numbers of manufacturers or suppliers.
 - .5 Names, addresses and telephone numbers of sources of spare parts.
 - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
 - .7 Cross-reference to warranty certificates as applicable.
 - .8 Starting point and duration of warranty period.
 - .9 Summary of maintenance procedures required to continue warranty in force.
 - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
 - .11 Organization, names and phone numbers of persons to call for warranty service.
 - .12 Typical response time and repair time expected for various warranted equipment.
 - .3 Procedure and status of tagging of equipment covered by extended warranties.
 - .4 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .9 Respond in a timely manner to oral or written notification of required construction warranty repair work.
- .10 Written verification will follow oral instructions. Failure to respond will be cause for the Consultant to proceed with action against Contractor.

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1.10 PRE-WARRANTY CONFERENCE

- .1 Meet with Consultant, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Consultant.
- .2 Consultant will establish communication procedures for:
 - .1 Notification of construction warranty defects.
 - .2 Determine priorities for type of defect.
 - .3 Determine reasonable time for response.
- .3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue construction warranty work action.
- .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.11 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Consultant.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
 - .1 Type of product/material.
 - .2 Model number.
 - .3 Serial number.
 - .4 Contract number.
 - .5 Warranty period.
 - .6 Inspector's signature.
 - .7 Construction Contractor.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

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Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

ELECTRICAL GENERAL PROVISIONS

1.0 GENERAL

1.1 Work Included

- .1 Supply and install all wiring, materials, equipment, etc., shown or required unless otherwise specified. Any item or system which is shown, mentioned or reasonably implied on either the drawings or in the specifications shall be considered to be properly and sufficiently specified and shown, and must be provided. Include all labour, equipment, tools, etc., required to complete all installations as intended. Install all equipment according to the method indicated, manufacturer's instructions and according to standard industry practices.
- .2 Refer to the Instructions to Bidders and General Conditions of the Specifications and conform to all requirements.
- .3 During the course of construction and testing, contractor shall report any equipment that fails to operator correctly, is damaged, or is in a condition that will not allow it to last for another 5 years. Contractor must provide, on request, a time and material estimate to repair or replace the faulty equipment. No additional work shall be undertaken without an estimate and approval in writing by the Engineer and the Owner.
- .4 Cables shall be installed as per manufacturer's guidelines. Only proper pulling equipment shall be utilized. Minimum bending radii and cable pulling tension shall not be exceeded. Ducts and cables shall be neatly trained in trenches and shall be adequately supported. Contractor shall decide mean and set-up of pulling equipment and direction or pull. Plan to be reviewed with Engineer prior to set-up.
- .5 All test and installation equipment shall be operated safely using the procedures outlined in the manufacturer's operating manual. Only personnel trained and qualified to operate the equipment shall perform this work.
- .6 The contractor shall be responsible for all permits, locates and inspections necessary to successfully perform the work. The contractor will pay for all associated costs of the above and include these costs in his proposal.

1.2 Scope of Work

- .1 Details regarding materials and installation methods are covered in the accompanying specifications. The drawings included in the package show the general layout of the work and include details regarding the installation.

1.3 Rules, Regulations and Permits

ELECTRICAL GENERAL PROVISIONS

- .1 Provide all work and materials in accordance with the latest editions of the Electrical Safety Code, the Building Code, applicable CSA Standards, the requirements of the Electrical Safety Authority, and all other applicable Municipal and Provincial codes and regulations. Any materials, equipment or installations not meeting all requirements of the appropriate regulatory agencies will not be accepted. It is the Contractor's responsibility to ensure these requirements are met and provide evidence of such.
- .2 Obtain and pay for all permits and fees for the execution and inspection of the electrical work. All work shall be provided by qualified journeyman electricians or apprentices holding valid Certificated of Qualification and be supervised by a competent foreman. The contractor shall also be a registered Master Electrician if such is required in the particular municipality where the work is performed. Certificates verifying that the installation and equipment meets all applicable inspections shall be presented to the Engineer.
- .3 The Contractor is obliged to inform the Engineer immediately of any contradiction or omission in the specifications or drawings relating to conformance with the aforementioned codes and standards so that it can be corrected prior to tender closing. Failure to do so will not relieve the Contractor from meeting the intent of paragraph 3.1.1.
- .4 Provide all necessary grounding as required by Electrical Safety Authority regardless of whether it is shown on the drawings.
- .5 All necessary cutting and patching for the electrical work will be provided by the appropriate skilled subtrade with at least 5 years skill-specific experience at the expense of the Contractor. Holes through exterior walls are to be flashed and made weatherproof. Repair any damage caused by the Contractor to existing buildings, equipment, or grounds, etc., to the satisfaction of the Engineer, and the Owner. Upon completion of the work, clean all equipment and remove from the site all debris associated with the work of all trades.
- .6 Provide legible signs and barriers on or around all live panels and test equipment during construction and testing to prevent injury or shock.
- .7 Test all equipment and wiring at any time requested by the Engineer as part of the Contract. Provide all meters, materials and qualified personnel required to perform this work.
- .8 The Contractor and all associated sub trades must carry proper and adequate liability insurance to protect all affected parties *including* the Owner and the Engineer from all claims related to their work for this project.

ELECTRICAL GENERAL PROVISIONS

- .9 Perform all work in such a manner as to cause as little disturbance or inconvenience as possible to the existing operations of the owner. Ensure that all outages are coordinated with the Owner's designated representative. Provide temporary measure (such as electrical power) as may be required from time to time by the Owner or the Engineer.
- .10 Provide all sleeves, inserts, and hangers required for the electrical work. Treat all sleeves or holes piercing acoustical separations for installations of this Division to maintain acoustical rating. All gaps shall be packed with acoustical insulation and sealed at both piercing fire and smoke separations with an approved watertight smoke and fire stop sealant such as manufactured by Dow Corning. All penetrations requiring fire stops shall be sealed with materials consistent with the required fire rating.
- .11 Plan work well in advance to eliminate delivery and installation difficulties. Coordinate work with other trades to prevent conflicts on site. Any additions costs that are borne by the Owner resulting from the Contractor's failure to do so shall be the responsibility of the Contractor.

1.4 Drawings

- .1 Drawings which accompany these specifications are diagrammatic and show the required distribution, number and locations of the electrical equipment, fixtures, and outlets and indicate suggested circuiting. Where exact building dimensions and details are required, use only job site dimensions.
- .2 Submit shop drawings for all items and equipment to the Engineer for approval prior to ordering of the material.
- .3 Provide a complete set of As-Built drawings to the Engineer, indicating in red ink all deviations and approved changes from the Contract Drawings.

1.5 Guarantee

- .1 Provide a written guarantee that covers all materials and installations of all work performed under the contract for this project. The guarantee shall extend for a period of one year from the date of final acceptance of the work.

1.6 Equipment, Materials and Methods

- .1 Where there are questions arising from the specifications, the drawings, or the underground plans, it is the responsibility of the Contractor to obtain clarification from the Engineer. Do not proceed in uncertainty.

ELECTRICAL GENERAL PROVISIONS

- .2 All items installed must be CSA approved for the particular application. All work and installations must be acceptable to the equipment manufacturer or system supplier and be approved by Electrical Safety Authority. All materials specified with manufacture's name, type, etc., are to establish type and quality of materials required and first choice of manufacturer. Equivalent materials by other manufactures may be used, but only after obtaining approval form the Engineer. Unless otherwise specified, used equipment and material shall not be used.
- .3 Generally, mount equipment as close to practical to the location shown on the drawings taking into account site conditions. Ensure all equipment is located in a manner allowing easy access for maintenance, repair, or adjustment.
- .4 The Engineer reserves the right to relocate any outlet, equipment, etc., up to 10 feet prior to installation without incurring any extra cost.
- .5 Provide outlet boxes of adequate size and type and approved as required for all wiring devices, light fixtures etc. Provide junction boxes as required and secure all boxes independent of the conduit/wiring system.
- .6 Use only approved conduit and raceways of adequate size to suit type and number of conductors being carried. Every section of conduit or armoured cable shall be adequately secured using approved supports, clamps, and fasteners. All conduit or armoured cable run in finished areas shall be concealed in walls, ceiling, or furring unless otherwise approved the Engineer.
- .7 All conductors used shall be copper.
- .8 Identify all new equipment such as panels, cabinets, starters, contactors, disconnect switches, etc., with "Lamacoid" plates with ½ " high lettering. Label all junction boxes with black marker identifying circuits, panels, and systems.

END OF SECTION

WIRE AND CABLE

1.0 GENERAL

1.1 Work Included

- .1 Building wire.
- .2 Cable.
- .3 Wiring connections and terminations.

1.2 Related Work

- .1 This Section shall be used in conjunction with the following other specifications and related Contract Documents to establish the total requirements for wire and cable.
 - .1 Section 26 05 01- Electrical General Provisions.
- .2 In the event of conflict regarding wire and cable requirements between this Section and any other section, the provisions of this Section shall govern.

1.3 Submittals

- .1 Submit manufacturer's product data for all cables and conductors furnished under this Section.
- .2 Submittals shall be made in accordance with the provisions of Section 01300, Submittals, and the requirements of this Section.

2.0 PRODUCTS

2.1 Building Wire

- .1 Thermoplastic-insulated Building Wire: C22.2 No.75-M1983 (R1992)
- .2 Thermoset-insulated Building Wire: C22.2 No.38-95
- .3 Feeders and Branch Circuits 6 AWG: Copper, stranded conductor, 600 volt insulation, RW90. Underground circuits to be RWU90 XLPE-TR insulation.
- .4 Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation, T90, stranded conductor.
- .5 Control Circuits: Copper, stranded conductor 600 volt insulation, T90 or TEW.

WIRE AND CABLE

2.2 Armoured Cable

- .1 Armoured Cable, Size 14 Through 6 AWG: Copper stranded conductor, with CSA certified liquid and vapour-tight solid interlocked aluminium or interlocked galvanized steel armour, 100V PVC jacketed insulation, rated 90°C, type TECK90.
- .2 Armoured Cable, Size 4 and larger: Copper stranded conductor, with CSA certified liquid and vapour-tight solid interlocked aluminium or interlocked galvanized steel armour, 1000 volt PVC jacketed XLPE insulation, rated 90°C, type TECK90.
- .3 Armoured Cable, Hazardous Areas: Copper stranded conductor, with CSA certified interlocked aluminium or interlocked galvanized steel armour suitable for use in Hazardous Locations (Class 1, Div. 1), 1000V XLPE insulation, fire retardant (FR) and low acid gas (LAG) PVC jacketed, rated 90°C, type TECK90. Sizes as per drawings.

3.0 EXECUTION

3.1 General Wiring Methods

- .1 Use no wire smaller than 12 AWG for power and lighting circuits, no smaller than 14 AWG for control wiring, and no smaller than 16 AWG for fire detection system wiring.
- .2 Place an equal number of conductors for each phase of a circuit in same raceway or cable.
- .3 Splice only in junction or outlet boxes. Control cables shall not be spliced.
- .4 Neatly train and lace wiring inside boxes, equipment, and panelboards.
- .5 Ensure that conductor lengths for parallel circuits are equal. Parallel conductor runs shall be sizes #1/0 AWG or larger, and all of the same conductor size.
- .6 Where connection of cables installed under this section are to be made by others, provide pigtails of adequate length for neat, trained and bundled connections.

3.2 Wiring Installation in Raceways

- .1 Pull all conductors into a raceway at the same time. Use CSA-listed wire pulling lubricant for pulling 4 AWG and larger wires.
- .2 Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.
- .3 Completely and thoroughly swab raceway system before installing conductors.

WIRE AND CABLE

3.3 Cable Installation

- .1 Provide protection for exposed cables where subject to damage. Ensure cables and ducts coming up through the ground are mechanically protected.
- .2 Support cables above accessible ceilings; do not rest on ceiling tiles. Use spring metal clips to support cables from structure.
- .3 Use suitable cable fittings and connectors.
- .4 Armoured cables bent during installation shall have a curve radius of the inner edge of the bend that is at least 6 times the external diameter of the cable. Bends shall be made without undue distortion of the armour and without injury to its inner or outer surface.

3.4 Wiring Connections and Terminations

- .1 Splice only in accessible junction boxes. Splices in power cables will not be allowed.
- .2 Use compression type connectors for copper wire splices and taps, 6 AWG and larger. Tape uninsulated conductors and connectors with electrical tape to 150 percent of the insulation value of conductor. Use solderless pressure connectors with insulating covers for copper wire splices and taps, 8 AWG and smaller. For 10 AWG and smaller, use insulated spring wire connectors with plastic caps on lighting and receptacle circuits.
- .3 Thoroughly clean wires before installing lugs and connectors.
- .4 Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.
- .5 Terminate spare conductors with electrical tape.
- .6 Splices below grade are not allowed.

3.5 Field Quality Control

- .1 Inspect wire and cable for physical damage and proper connection.
- .2 Torque test conductor connections and terminations to manufacturer's recommended values or to Table D6 or D7 in the CEC.
- .3 Perform continuity and insulation tests on all power and equipment branch circuit conductors. Verify proper phasing connections.

WIRE AND CABLE

3.6 Wire and Cable Installation Schedule

- .1 As per drawings.

END OF SECTION

GROUNDING AND BONDING

1.0 GENERAL

1.1 Related Documents

- .1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 Summary

- .1 This Section includes methods and materials for grounding systems and equipment.

1.3 Submittals

- .1 Product Data: For each type of product indicated.
- .2 Field quality-control test reports.

1.4 Quality Assurance

- .1 Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.
 - .1 Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association to supervise on-site testing specified in Part 3
- .2 Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- .3 Comply with UL 467 for grounding and bonding materials and equipment.

2.0 PRODUCTS

2.1 Conductors

- .1 Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

GROUNDING AND BONDING

- .2 Bare Copper Conductors:
 - .1 Solid Conductors: ASTM B 3.
 - .2 Stranded Conductors: ASTM B 8.
 - .3 Tinned Conductors: ASTM B 33.
 - .4 Bonding Cable: 28 kcmil, 14 of No. 17 AWG conductor, ¼ inch (6 mm) in diameter.
 - .5 Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - .6 Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
 - .7 Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16inch (1.6 mm) thick.

2.2 Connectors

- .1 Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.
- .2 Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
 - .1 Pipe Connectors: Clamp type, sized for pipe.
- .3 Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 Grounding Electrodes

- .1 Ground Rods: As required.

3.0 EXECUTION

3.1 Applications

- .1 Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.
- .2 Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.
 - .1 Bury at least 24 inches (600 mm) below grade.

GROUNDING AND BONDING

- .2 Duct-Bank Grounding Conductor: Bury 12 inches (300 mm) above duct bank when indicated as part of duct-bank installation.
- .3 Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.
- .4 Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
 - .1 Install bus on insulated spacers 1 inch (25 mm), minimum, from wall 6 inches (150 mm) above finished floor, unless otherwise indicated.
 - .2 Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, down to specified height above floor, and connect to horizontal bus.
- .5 Conductor Terminations and Connections:
 - .1 Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - .2 Underground Connections: Welded connectors except at test wells and as otherwise indicated.
 - .3 Connections to Ground Rods at Test Wells: Bolted connectors.
 - .4 Connections to Structural Steel: Welded connectors.

3.2 Equipment Grounding

- .1 Install insulated equipment grounding conductors with all feeders and branch circuits.
- .2 Install insulated equipment grounding conductors with the following items, in addition to those required by the Canadian Electrical Code:
 - .1 Feeders and branch circuits.
 - .2 Lighting circuits.
 - .3 Receptacle circuits.
 - .4 Single-phase motor and appliance branch circuits.
 - .5 Three-phase motor and appliance branch circuits.
 - .6 Flexible raceway runs.
 - .7 Armoured and metal-clad cable runs.
 - .8 Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.

GROUNDING AND BONDING

- .9 Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.
- .3 Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
- .4 Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- .5 Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
- .6 Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
- .7 Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
 - .1 Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch (6-by-50-by-300-mm) grounding bus.
 - .2 Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.
- .8 Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 Installation

GROUNDING AND BONDING

- .1 Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- .2 Common Ground Bonding with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.
- .3 Ground Rods: Drive rods until tops are 2 inches (50 mm) below finished floor or final grade, unless otherwise indicated.
 - .1 Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.
- .4 Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.
 - .1 Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - .2 Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
 - .3 Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.
- .5 Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.
- .6 Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet (18 m) apart.
- .7 Ground Ring: Install a grounding conductor, electrically connected to each building structure ground rod and to each indicated item, extending around the perimeter of building.

3.4 Field Quality Control

GROUNDING AND BONDING

- .1 Testing Agency: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

END OF SECTION

CONDUITS

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 33 00 – Submittal Procedures.
- .3 Section 01 74 11 – Cleaning.
- .4 Section 01 77 00 – Closeout Procedure.
- .5 Section 01 78 00 – Manual.
- .6 Section 26 05 01 – Electrical General Provisions.
- .7 Section 26 05 21 – Wires and Cables.
- .8 Section 26 05 26 – Ground and Bonding.

Part 2 Products

2.1 RIGID METAL CONDUITS AND FITTINGS

- .1 Rigid Steel Conduit: CSA C22.2 No.45-M1981 (R1992)
- .2 PVC Externally Coated Conduit: rigid steel conduit with external 20 mil PVC coating and internal phenolic coating over a galvanized surface.
- .3 Fittings and Conduit Bodies: Can/CSA 22.2 No.18-92; threaded type, material to match conduit.

2.2 ELECTRIC METALLIC TUBING (EMT) AND FITTINGS

- .1 EMT: CSA 22.2 No.83-M1995 (R1992); galvanized tubing.
- .2 Fittings and Conduit Bodies: CAN/CSA 22.2 No.18-92; steel, set screw type.

2.3 FLEXIBLE METAL CONDUIT AND FITTINGS

- .1 Conduit: CSA 22.1 No.56-1977 (R1992).
- .2 Fittings and Conduit Bodies: CAN/CSA 22.2 No.18-92.

2.4 LIQUDTIGHT FLEXIBLE CONDUIT AND FITTINGS

- .1 Conduit: CSA 22.1 No.56-1977 (R1992) Flexible metal conduit with PVC jacket.
- .2 Fittings and Conduit Bodies: CAN/CSA 22.2 No.18-92.

2.5 LIQUDTIGHT NONMETALLIC FLEXIBLE CONDUIT

- .1 Conduit: CSA 22.1 No.227.3-M1991 Flexible plastic conduit.
- .2 Fittings and Conduit Bodies: CAN/CSA 22.2 No.18-92

CONDUITS

2.6 RIGID PVC CONDUIT

- .1 Conduit: CSA 22.1 No.211.1-M1984 (R1992); Rigid Types EB1 and DB2/ES2 PVC Conduit.
- .2 Fittings and Conduit Bodies: CAN/CSA 22.2 No.18-92.

2.7 CONDUIT SUPPORTS

- .1 Conduit Clamps, Straps, and Supports: Steel or malleable iron.

Part 3 Execution

3.1 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

- .1 Size conduit for conductor type installed, $\frac{3}{4}$ inch minimum size.
- .2 Arrange conduit to maintain headroom and present a neat appearance.
- .3 Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.
- .4 Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.
- .5 Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.
- .6 Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.
- .7 Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.
- .8 Do not notch structural members for passage of raceways except without prior review of the Engineer.
- .9 Support conduit at distances as defined in the Canadian Electrical Safety Code.

3.2 CONDUIT INSTALLATION

- .1 Cut conduit square using a saw or pipe cutter; de-burr cut ends.
- .2 Bring conduit to the shoulder of fittings and couplings and fasten securely.
- .3 Use conduit hubs [or sealing locknuts] for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet conditions.
- .4 Install no more than the equivalent of three 90 degree bends between pull boxes.
- .5 Use conduit bodies to make sharp changes in direction, as around beams.
- .6 Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2 inch size. All parallel bends to be concentric.

CONDUITS

- .7 Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point. All conduits to enter from bottom or side, no top entry without Engineer's approval.
- .8 Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.
- .9 Provide nylon pull string rope secured at each end of each empty conduit, except sleeves and nipples. Identify with tags at each end the origin and destination of each empty conduit.
- .10 Install expansion joints for long runs or where conduit crosses building expansion joints.
- .11 Where conduit penetrates fire-rated walls and floors, seal opening around conduit with CSA listed foamed silicone elastomer compound.
- .12 Route conduit through roof openings for piping and ductwork where possible; otherwise, route through roof jack with pitch pocket.
- .13 Conduit in Slabs Above Grade: do not route conduits to cross each other in slabs above grade. Locate conduits in center one-third of slabs where possible.
- .14 Concealed, embedded and buried conduits shall emerge at right angles to the surface and have none of the curved portion of the bend exposed.
- .15 Lay cable in cable troughs in accordance with drawings.

3.3 CONDUIT INSTALLATION SCHEDULE

- .1 Underground Installations More than Five Feet From Foundation Wall: Direct bury Type DB2 PVC duct.
- .2 Installations In or Under Concrete Slab, In Exterior Light Pole Foundations or Underground Within Five Feet of Foundation Wall: Schedule 40 PVC conduit.
- .3 In Slab Above Grade: Rigid steel conduit.
- .4 Exposed Outdoor Locations: Rigid steel conduit.
- .5 Wet Interior Locations: Rigid steel conduit.
- .6 Concealed Dry Interior Locations: Rigid steel conduit.
- .7 Exposed Dry Interior Locations: Rigid steel conduit.
- .8 Corrosive Interior Locations: PVC-coated rigid steel conduit.
- .9 Hazardous (Classified) Locations: Rigid steel conduit.

END OF SECTION