INVITATION TO TENDER 17-06

AIRPORT ABOVE GROUND FUEL STORAGE SYSTEM

MASTER MUNICIPAL CONSTRUCTION DOCUMENTS - 2009 Platinum Edition

UNIT PRICE CONTRACT

January 25th, 2017

Supply Management
301 St. Ann's Road, Campbell River, B.C. V9W 4C7
Telephone: 250.286.5766; Fax: 250.286.5741
clinton.crook@campbellriver.ca

INVITATION TO TENDER 17-06

AIRPORT ABOVE GROUND FUEL STORAGE SYSTEM

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The complete Contract Documents consist of the following parts:

1. The Master Municipal Construction Documents (Tender Package) consisting of the following parts (**included in this tender package)**:

   - Invitation to Tender
   - Instructions to Tenderers, Part I
   - Form of Tender
     - Appendix 1 - Schedule of Quantities and Prices
     - Appendix 2 - Preliminary Construction Schedule
     - Appendix 3 - Experience of Superintendent
     - Appendix 4 - Comparable Work Experience
     - Appendix 5 - Subcontractors
     - Appendix 6 - Tenderer's Current Projects Underway
   - Agreement - Draft
     - Schedule 1 - Schedule of Contract Documents
     - Schedule 2 - List of Contract Drawings
     - Appendix 7 - Safety Covenant
   - Supplementary General Conditions
   - Supplementary Specifications

2. Additional reference documentation consisting of the following parts **(not distributed in this tender package) available at www.campbellriver.ca**:
   - Supplementary Specifications, City of Campbell River, Design Standards 2010, Appendix A to Subdivision and Development Servicing Bylaw 3419
   - City of Campbell River, Approved Utility Product List April 2011

3. The balance of the Master Municipal Construction Documents, Platinum, 2009 edition. These documents are available in the "MMCD - General Conditions, Specifications and Standard Detail Drawings" **(not distributed in this tender package)**:

INVITATION TO TENDER 17-06

AIRPORT ABOVE GROUND FUEL STORAGE SYSTEM

The City of Campbell River invites qualified Tenderers for the Airport Above Ground Fuel Storage System which will be comprised of the design, supply and installation of 1-60,000 litre (L) double wall steel jet fuel aboveground storage tank c/w all associated piping, equipment, power / communications, kiosk, grounding, all power and communications cables, connections/terminations within the facility and to/from the Field Electrical Centre (FEC), inspection, testing and commissioning. Prices are to include the design, manufacture, delivery, testing, inspections, and commissioning of the tank and all related systems (communications, electrical, mechanical).

This Tender is available electronically by downloading from the City's website at:
www.campbellriver.ca/city_services/purchasing/request_for_proposal.asp

This Tender is scheduled to close at:

Tender Closing Time:	**3:00 p.m. local time**
Tender Closing Date:	**Thursday February 16th, 2017** *There will NOT be a Public Opening for this Tender*
Delivered to:	City of Campbell River City Hall 301 St. Ann's Road 1st Floor Reception Desk Campbell River, BC V9W 4C7 **ATTN: Clinton Crook – Senior Buyer**
Tender Enquiries:	Clinton Crook, SCMP, CPSM, Senior Buyer Telephone: 250.286.5766 Email: clinton.crook@campbellriver.ca

INVITATION TO TENDER 17-06

AIRPORT ABOVE GROUND FUEL STORAGE SYSTEM

RECEIPT CONFIRMATION FORM

As receipt of this document, and to directly receive any further information, addendums, etc. regarding this competition, please return this form within two (2) working days to:

ATTN: Clinton J. Crook, SCMP, CPSM,
Senior Buyer
Email: clinton.crook@campbellriver.ca
Fax: 250.286.5741

Company Name: _____

Address: _____

City: _____

Province/State: _____ Postal/Zip Code: _____

Telephone No: _____ Fax No: _____

Contact Person: _____

Title: _____

Email: _____

CITY OF CAMPBELL RIVER

TENDER 17-06

AIRPORT ABOVE GROUND FUEL STORAGE SYSTEM

INSTRUCTIONS TO TENDERERS

PART I

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INSTRUCTIONS TO TENDERERS - PART I

TO BE READ WITH "INSTRUCTIONS TO TENDERERS - PART II" CONTAINED IN THE EDITION OF THE PUBLICATION "MASTER MUNICIPAL CONSTRUCTION DOCUMENTS" AND APPLICABLE CITY OF CAMPBELL RIVER BYLAWS SPECIFIED IN ARTICLE 2.2 BELOW

Reference No.: **TENDER 17-06**

Contract: **AIRPORT ABOVE GROUND FUEL STORAGE SYSTEM**

Introduction **1**

1.1 These Instructions apply to and govern the preparation of tenders for this *Contract*. The *Contract* is generally for the following work:

The City of Campbell River invites qualified Tenderers for the Airport Above Ground Fuel Storage System which will be comprised of the design, supply and installation of 1-60,000 litre (L) double wall steel jet fuel aboveground storage tank c/w all associated piping, equipment, power / Communications, kiosk, grounding, all power and communications cables, connections/terminations within the facility and to/from the Field Electrical Centre (FEC), inspection, testing and commissioning. Prices are to include the design, manufacture, delivery, testing, inspections, and commissioning of the tank and all related systems (communications, electrical, mechanical).

1.2 Direct all tender inquiries regarding the *Contract*, to:

Clinton Crook, SCMP, CPSM, Senior Buyer
Telephone: 250.286.5766
Email: clinton.crook@campbellriver.ca

Tender Documents **2**

2.1 The tender documents which a tenderer should review to prepare a tender consist of all of the *Contract Documents* listed in Schedule 1 entitled "Schedule of Contract Documents". Schedule 1 is attached to the Agreement which is included as part of the tender package. The *Contract Documents* include the Drawings listed in Schedule 2 to the Agreement, entitled "List of Drawings".

2.2 A portion of the Contract Documents is included by reference. Copies of these documents have not been included with the tender package. These documents are the Instructions to Tenderers - Part II, General Conditions, Specifications and Standard Detail Drawings contained in the publication entitled "Master Municipal Construction Documents - General Conditions, “Specifications and Standard Detail Drawings" and relevant sections of Supplementary

Specifications, City of Campbell River, Design Standards 2010, Appendix A to Subdivision and Development Servicing Bylaw 3419. Refer to Schedule 1 attached to the Agreement or, if no edition has been specified, then the applicable edition shall be the most recent edition as of the date of this *Contract*. All sections of this publication are by reference included in the *Contract Documents*.

2.3 Any additional information made available to Tenderers prior to the Tender Closing Time by the *Owner* or representative of the *Owner*, such as geotechnical reports or as-built plans, which is not expressly included in Schedule 1 or Schedule 2 to the Agreement, is not included in the *Contract Documents*. Such additional information is made available only for the assistance of tenderers who must make their own judgement about its reliability, accuracy or completeness and neither the *Owner* nor any representative of the *Owner* gives any guarantee or representation that the additional information is reliable, accurate or complete.

Submission of Tenders

3

3.1 Tenders must be submitted in a sealed opaque package, clearly marked on the outside with the above *Contract* Title and Reference No., and must be received on or before:

Tender Closing Time: **3:00 p.m. local time**
There will NOT be a Public Opening for this Tender

Tender Closing Date: **Thursday February 16th, 2017**

Delivered to: City of Campbell River City Hall
301 St. Ann's Road
1st Floor Reception Desk
Campbell River, BC V9W 4C7
ATTN: Clinton Crook – Senior Buyer

3.2 Late tenders will not be accepted or considered, and will be returned unopened.

3.3 Tender Submission

.1 Tenders **must** be submitted on the Tender Forms included in these tender documents. The addition to or changing of any words in these Tender Forms by the tenderer or the failure to comply with and complete all items may be cause for rejection without consideration of the tender.

.2 The Tender Submission **must** include acknowledgement of receipt of all issued addenda.

.3 The Tender Submission **must** include the specified financial security, in the form of the "Bid Security" as required in Section 5.2 of the Instructions to Tenderers Part II.

.4 The Form of Tender **must** bear the signature of a legal signing authority of the tenderer.

.5 Other than acknowledgement of receipt of addenda, or request for withdrawal or revision, documents submitted as part of a tender will **not** be considered if received by any of the Owner's facsimile machines.

.6 Except as expressly and specifically permitted in these Instructions to Tenderers, no Tenderers shall have any claim for any compensation of any kind whatsoever, as a result of participating in the tender, and by submitting a bid, each Tenderer shall be deemed to have agreed that it has no claim.

.7 Any items stated within Supplementary Specifications that are identified as being due with Tender Submission.

.8 Tenderers are requested to return the enclosed Receipt Confirmation form within two (2) working days of receipt to receive further information regarding this Invitation to Tender.

Additional Instructions to Tenderers **4**

Freedom of Information 4.1 The *Owner* is subject to the provisions of the Freedom of Information and Protection of Privacy Act. As a result, while Section 21 of the Act does offer some protection for third party business interests, the *Owner* cannot guarantee that any information provided to the *Owner* can be held in confidence. All tenders, after closing time and date become the property of the *Owner*.

Cost of Tender Submission 4.2 The *Owner* shall not be liable for a Tenderer's cost of submitting a tender.

Evaluation Criteria 4.3 (a) The *Owner* reserves the right to waive informalities in or reject any or all tenders or accept the tender deemed most favourable in the interests of the *Owner*. Tenders will be evaluated on the combination of information provided in the Form of Tender and Appendices, which may offer the best value and not necessarily the lowest price. The *Owner* reserves the right to conduct pre-selection meetings with Tenderers. The *Owner* further reserves the right to conduct post-selection meetings in order to correct, change or adapt the selected Tender to the wishes of the *Owner*. **Acceptance of any tender may be subject to budgetary considerations and/or City of Campbell River Council approval, and/or the approval of other jurisdictions having authority.**

Construction Association Policies 4.4
4.4.1 The *Owner* is not a member of the Public Construction Council of

British Columbia, the British Columbia Construction Association or any other construction association.

4.4.2 The *Owner* does not adopt or agree to be bound by "The Procedures and Guidelines Recommended For Use on Publicly Funded Construction Projects" produced by the Public Construction Council of British Columbia, September 1989, or any other procedure/guideline recommended, adopted or produced by any construction association in the tendering and award of the *Contract* of this project.

Good Neighbour Policy

4.5

4.5.1 The *Owner's* Good Neighbour Policy as adopted by City of Campbell River Council on April 15, 1997 shall apply to this contract.

4.5.2 The Policy states: "That Contractors working on Municipal rights-of-way or on private land where new rights-of-way are being created, be required to provide written notice to the residents in the immediate area of the works, describing what is being constructed, when the works will occur, who to contact for more information and what precautions should be taken if necessary; and that the work-site be posted for safety reasons."

Mandatory Site Meeting

4.6 A Mandatory Site Meeting will NOT be held.

Addition\Deletion

4.7 Tenderers are advised that the *Owner* may, at its option, and subject to available funding and budgetary considerations, delete any *Work* described in the *Contract Documents* or may require that optional work be added to the scope of *Work*.

Omissions and Discrepancies

4.8 The Tenderer must carefully examine the *Contract Documents* and the site of the proposed works, judging for and satisfying themselves as to the probable conditions to be encountered. Should a Tenderer find omissions from or discrepancies in the *Contract Documents*, or be in doubt as their meaning, the Tenderer should notify the Owner no later than 5 days prior to the tender closing, who may cause to send a written instruction to all Tenderers in the form of an addendum, which shall become part of the contract and shall be covered in the contract price. The Tenderer may not claim, after the submission of a tender, that there was any misunderstanding with respect to the conditions imposed by the documents. No oral interpretations made to a Tenderer as to the meaning of the *Contract Documents* shall be considered binding. Every request for an interpretation shall be made in writing, forwarded to the office referred to in paragraph 3.1 of the Instructions to Tenderers – Part I.

Amendment of Tenders

4.9

4.9.1 Delete Paragraphs 12.1 of the Instructions to Tenderers, Part II and replace with the following paragraphs 4.9.2 and 4.9.3:

4.9.2 A Tenderer may, without prejudice to itself, withdraw or revise a tender after it has been deposited with the *Owner*, provided the request for withdrawal or revision is filed with the *Owner* in writing before the time set for the Tender closing. Non-facsimile request(s) should be submitted in a sealed opaque envelope clearly marked with the contract name and reference number to the office referred to in paragraph 3.1 of the Instructions to Tenderers - Part 1. In the case of revision(s), a revised price will not be accepted, only the addition to or deduction from the tender price will be accepted. Written withdrawals or revisions must be signed by the same person or persons who signed the original Form of Tender.

4.9.3 **In the case of facsimile requests for withdrawal or revision, they will only be accepted if they are received by the *Owner's* Supply Management Department facsimile machine at 250.286.5741 at least one hour before the scheduled tender closing time. Tenderers assume the entire risk that the facsimile equipment and staff at the above office will properly receive the facsimile containing the withdrawal or revision. The original form of the facsimile must be received as soon as possible after the tender closing at the office referred to in paragraph 3.1 of the Instructions to Tenderers - Part 1.**

Sub-Surface Conditions

4.10 A geotechnical assessment or a geotechnical exploration has not been completed. Tenderers shall make their own assessment of the soil and groundwater conditions at the location.

Environmental Conditions

4.11 An Environmental Impact Assessment (EIA) has been completed (by Mainstream Biological Consulting, November 2016) for the *Place of Work* and is attached to this Tender. The successful Tenderer will be required to produce and deliver an Environmental Protection Plan in full conformance with this EIA during course of construction.

Working Hours

4.12 Work inside the *Owner's* Property shall be carried out between the hours of 7:00 a.m. and 10:00 p.m. seven (7) days a week unless other arrangements are made between the *Owner* and the *Contractor*.

Commencement And Completion of Work

4.13 The *Owner* requires that the *Work* under this Contract be completed as quickly as possible after *Contract* award, and within the following milestones:

Subject to *Notice of Award* being issued by March 20th, 2017, *Substantial Performance* of this *Contract* is required to be achieved by September 30th, 2017.

Form of Tender

CITY OF CAMPBELL RIVER

Reference No.: **TENDER 17-06**

Contract: **AIRPORT ABOVE GROUND FUEL STORAGE SYSTEM**

TO OWNER:

1 I (WE), THE UNDERSIGNED:

1.1 have received and carefully reviewed all of the *Contract Documents*, including the Instructions to Tenderers, the specified edition of the "Master Municipal Construction Documents - General Conditions, Specifications and Standard Detail Drawings" and the following Addenda:

_____
_____
_____
_____
_____
_____;
(ADDENDA, IF ANY) **(TENDERER TO COMPLETE)**

1.2 have full knowledge of the *Place of the Work*, and the *Work* required; and

1.3 have complied with the Instructions to Tenderers; and

2 ACCORDINGLY I (WE) HEREBY OFFER:

2.1 to perform and complete all of the *Work* and to provide all the labour, equipment and material as set out in the *Contract Documents*, in strict compliance with the *Contract Documents*; and

2.2 to achieve *Substantial Performance* of the *Work* on or before September 30th, 2017; and

2.3 to do the *Work* for the price, which is the sum of the products of the actual quantities incorporated into the *Work* and the appropriate Lump Sums set out in Appendix 1, the "*Schedule of Quantities and Prices*", plus any lump sums or specific prices and adjustment amounts as provided by the *Contract Documents*. For the purposes of tender comparison, our offer is to complete the *Work* for the "*Tender Price*" as set out on Appendix 1 of this Form of Tender. Our *Tender Price* is based on the estimated quantities listed in the *Schedule of Quantities and Prices*, and excludes *GST*.

Tenderer's Initial	Owner's Initial

3 I (WE) CONFIRM:

3.1 that we understand and agree that the quantities as listed in the *Schedule of Quantities and Prices* are estimated, and that the actual quantities will vary.

4 I (WE) CONFIRM:

4.1 that the following Appendices are attached to and form a part of this tender:

4.1.1 the Appendices as required by paragraph 5.3 of the Instructions to Tenderers - Part II.

5 I (WE) AGREE:

5.1 that this tender will be irrevocable and open for acceptance by the *Owner* for a period of 60 calendar days from the day following the *Tender Closing Date and Time*, even if the tender of another tenderer is accepted by the *Owner*. If within this period the *Owner* delivers a written notice ("*Notice of Award*") by which the *Owner* accepts our tender we will:

5.1.1 within 10 *Days* of receipt of the written *Notice of Award* deliver to the *Owner*:

a a *Construction Schedule*, as provided by GC 4.6.1; and as per *Supplemental Specifications* in 01 31 00S; and

b a "clearance letter" indicating that the tenderer is in WCB compliance; and

c a copy of the insurance policies as specified in GC 24 indicating that all such insurance coverage is in place; and

d a Health and Safety Program Manual pertaining to the Work;

5.1.2 As per General Condition 4.6.6, the Owner shall issue the Notice to Proceed within 14 days of receipt of the documentation required under item 5.1.1 above.

5.1.3 within 2 *Days* of receipt of written "*Notice to Proceed*", or such longer time as may be otherwise specified in the *Notice to Proceed*, commence the *Work*.

5.1.4 sign the *Contract Documents* as required by GC 2.1.2.

Tenderer's Initial	Owner's Initial

5.1.5 within 10 days of the issue of the *Certificate of Substantial Performance* deliver to the Owner, a Maintenance Period Financial Security as per Supplementary General Condition 25.4.1.

6 I (WE) AGREE:

6.1 that, if we receive written *Notice of Award* of this *Contract* and, contrary to paragraph 5 of this Form of Tender, we:

6.1.1 fail or refuse to deliver the documents as specified by paragraph 5.1.1 of this Form of Tender; or

6.1.2 fail or refuse to commence the *Work* as required by the *Notice to Proceed*,

then such failure or refusal will be deemed to be a refusal by me (us) to enter into the *Contract* and the *Owner* may, on written notice to me (us), award the *Contract* to another party. I (We) further agree that, as full compensation on account of damages suffered by the *Owner* because of such failure or refusal, the *Bid Security* shall be forfeited to the *Owner*, in an amount equal to the lesser of:

6.1.3 the face value of the *Bid Security*; and

6.1.4 the amount by which my (our) *Tender Price* is less than the amount for which the *Owner* contracts with another party to perform the *Work*.

7 I (WE) DECLARE THAT:

7.1 no person, firm or company other than the undersigned, has any interest in this tender or in the proposed *Contract* for which this tender is made;

7.2 this tender is made without any connection, knowledge, comparison of figures, or agreement with any other company, firm or person making a tender for the same work;

7.3 in tendering for this work, and when called upon to enter into an agreement with the *Owner*, I (we) will be bound to comply with all laws, statutes, and municipal bylaws pertaining to the work. The agreement will be governed by the laws of the province of British Columbia;

7.4 in submitting this tender I (we) did not rely upon any information provided by the *Owner*, or any of the *Owner's* employees or agents, relating to the conditions, contingencies, risks or other circumstances, local or otherwise, which might influence or

Tenderer's Initial	Owner's Initial

affect the performance or the cost of the work, including, without limiting the nature of the ground, subsoil, substrata of the work site, the means of access to the work site, the quality, quantity, nature or location of the materials to be furnished or removed in performance of the work, and the conditions under which the labour force will be employed, except the extent that any such information is expressly set forth in the *Contract Documents*. I (we) have relied on our own examination of the work site and have informed ourselves as to all conditions, contingencies, risks, and circumstances, local or otherwise, which might influence or affect the performance or the cost of the work. I (we) accept the site prior to the signing of the *Contract*.

8 WE AGREE:

8.1 Subject to *Notice of Award* being issued by March 20th, 2017, the work shall be completed entirely by September 30th, 2017 (The Designated Completion Period);

8.2 There shall be no exclusion of time from the Designated Completion Period for any reason OTHER than delays clearly attributable to the OWNER, its agents, employees or any Authorized Representatives.

9 I (WE) DECLARE THAT:

9.1 I (we) recognize that the lowest or any tender will not necessarily be accepted; and

9.2 I (we) recognize that the *Owner* reserves the right to reject all tenders or to accept the tender which best suits its long term objectives; and

I (we) recognize that the *Owner* reserves the right to accept or reject all or part of this Tender at any time during the period specified by paragraph 5.1 of this Form of Tender.

10 I (WE) DECLARE THAT:

10.1 I (we) do not (or any related company) have any family, ownership, and operating relationships with the City of Campbell River, or any elected official, staff or other officials holding public office in the City of Campbell River and agree that the Owner reserves the right to reject any tender that may be perceived to be in a conflict of interest.

11 I (WE) DECLARE THAT:

11.1 In this tender:

(a) "Related Party of the Tenderer" means:

- an officer or director of the Tenderer;
- a shareholder of the Tenderer;

Tenderer's Initial	Owner's Initial

- a corporation with a shareholder or director who is also a shareholder or director of Tenderer;

(b) "Public Authority" has the same meaning as under the Community Charter.

11.2 I (we) hereby declare that neither the Tenderer nor a Related Party of the Tenderer:

(a) has had a bid bond or performance bond retained or claimed against;
(b) has breached a contract for works or services with the *Owner* or other Public Authority in British Columbia;
(c) has been engaged in a legal action against the *Owner* or another Public Authority in British Columbia, or the elected or appointed officers and employees of the *Owner* or that other Public Authority, in relation to;
- any other contract for works or services;
- any matter arising from the exercise of the *Owner's* or the other Public Authority's powers, duties or functions under the Community Charter, Local Government Act or other enactment;

(d) has been charged or convicted of an offence in relation to the performance of a contract for works or services with the *Owner* or other Public Authority;

within five years of the closing date of this Tender.

Tenderers who are unable to truthfully complete this declaration must provide full particulars of the relevant circumstances. Submission of a false declaration is grounds for rejection of a tender.

11.3 I (we) hereby declare that the *Owner* may in its absolute discretion reject a Tender submitted by a Tenderer if the Tenderer or a Related Party of the Tenderer:

(a) has had a bid bond or performance bond retained or claimed against;

(b) has breached a contract for work or services with the *Owner* or other Public Authority in British Columbia;

(c) has been engaged in a legal action against the *Owner* or another public authority in British Columbia, or the elected or appointed officers and employees of the *Owner* or that other public authority, in relation to:

- any other contract for works or services;
- any matter arising from the exercise of the *Owner's* or the other public authority's powers, duties or functions under the Community Charter, Local Government Act or other enactment;

Tenderer's Initial	Owner's Initial

(d) has been charged or convicted of an offence in relation to the performance of a contract for works or services with the *Owner* or other Public Authority;

within five years of the closing date of this Tender.

11.4 I (we) hereby declare that in determining whether to reject a tender the *Owner* will consider whether:

(a) the legal action is likely to affect the Tenderers ability to work with the *Owner*, its consultants and representatives, and;

whether the *Owner's* or other public authority's experience with the Tenderer indicates that the *Owner* is likely to incur increased costs including but not limited to staff and legal costs in the administration of this contract if it is awarded to the Tenderer.

12 I (WE) AGREE THAT:

12.1 I (we) agree that if any director, officer or employee, agent or other representative of a Tenderer makes any representation or solicitation to the Mayor, any Councillor, officer or employee of the City of Campbell River, other than those specifically designated in the Tender documents, with respect to this Tender, whether before or after the submission of the Tender, the City shall be entitled to reject or not accept the Tender.

MY (OUR) ADDRESS is as follows:

_____

_____

_____

Phone: _____

Fax: _____

E-mail: _____

This Tender is executed this _____ day of _____, 2017.

_____
(Full Legal Name of Corporation, Partnership or Individual)

Tenderer's Initial	Owner's Initial

_____
(Printed Name)

_____
(Authorized Signatory)

Tenderer's Initial	Owner's Initial

Appendix 1

SCHEDULE OF QUANTITIES AND PRICES – GST EXCLUDED
(See paragraph 5.3.1 of the Instructions to Tender – Part II)

(All prices and *Quotations* including the *Contract Price* shall include all *Taxes,* but shall not include *GST, GST* shall be shown separately.)

Item #	Ref#	Description	Unit	Quantity	Total Price
1	01 29 00S 1.	60,000 L jet fuel, above Ground Storage Tank c/w load/offload cabinets, and controls/monitoring equipment.	LS	1	$
2	01 29 00S 2.	New power / communications kiosk, and two (2) emergency stop buttons	LS	1	$
3	01 29 00S 3.	Make Required Connections within FEC for New Fuel Site	LS	1	$
4	01 29 00S 4.	Supply and Install all required power and communications cable between facility and FEC, and within facility in supplied ducts. Supply and install any above ground duct or cable trays required within the facility.	LS	1	$
5	01 29 00S 5.	Make Connections from Fuel Site Cabinet to Jet Fuel Offload/Load Cabinet, Power and Control Cabinet, and Fuel Apron Floodlight c/w All Connections, Emergency Switches, etc.	LS	1	$
6	01 29 00S 6.	Install New Floodlight and pole and fixtures at Fueling Area	LS	1	$
7	01 29 00S 7.	Testing and Commissioning	LS	1	$
				Subtotal:	**$**
				GST (5%):	$
				Airport Above Ground Fuel Storage System Total:	**$**

Tenderer's Initial | Owner's Initial

Appendix 2

PRELIMINARY CONSTRUCTION SCHEDULE

(See paragraph 5.3.2 of the Instructions to Tenderers - Part II)

Indicate Time-Scaled Network Construction Schedule Based On *Critical Path Method*.
See Supplemental Specification 01 31 00S For Further Detail

ACTIVITY	MILESTONE DATES	CONSTRUCTION SCHEDULE WITH CRITICAL PATH SHOWN (MONTHS)									
		1	2	3	4	5	6	7	8	9	10
Shop Drawings											
Fabrication											
Delivery to Campbell River Airport											
Installation											
Commissioning											

Tenderer's Initial | Owner's Initial

Appendix 3

EXPERIENCE OF SUPERINTENDENT
(See paragraph 5.3.3 of the Instructions to Tenderers - Part II)

Name: _____

Experience:

1. Dates: _____

   Project Name: _____

   Responsibility: _____

   _____

   _____

   References: _____

2. Dates: _____

   Project Name: _____

   Responsibility: _____

   _____

   _____

   References: _____

3. Dates: _____

   Project Name: _____

   Responsibility: _____

   _____

   _____

   References: _____

Tenderer's Initial	Owner's Initial

Appendix 4

COMPARABLE WORK EXPERIENCE
(See paragraph 5.3.4 of the Instructions to Tenderers - Part II)

PROJECT	OWNER/ CONTRACT NAME	PHONE NUMBER	WORK DESCRIPTION	VALUE ($)

Tenderer's Initial	Owner's Initial

Appendix 5

SUBCONTRACTORS
(See paragraph 5.3.5 of the Instructions to Tenderers - Part II)

TENDER ITEM	TRADE	SUBCONTRACTOR NAME	PHONE NUMBER
	Electrical		

Tenderer's Initial | Owner's Initial

Appendix 6

TENDERERS CURRENT PROJECTS UNDERWAY

PROJECT	OWNER/ CONTRACT NAME	PHONE NUMBER	WORK DESCRIPTION	VALUE ($)	% COMPLETE

Tenderer's Initial	Owner's Initial

Draft Agreement

Between Owner and Contractor

THIS AGREEMENT made in duplicate this _____ day of _____, 2017.

Reference No.: **TENDER 17-06**

Contract: **AIRPORT ABOVE GROUND FUEL STORAGE SYSTEM**

BETWEEN:

CITY OF CAMPBELL RIVER

(the "*Owner*")

AND:

TBD

(the "*Contractor*")

The *Owner* and the *Contractor* agree as follows:

ARTICLE 1 THE WORK - START/COMPLETION DATES

1.1 The *Contractor* will perform all *Work* and provide all labour, equipment and material and do all things strictly as required by the *Contract Documents*.

1.2 The *Contractor* will commence the *Work* in accordance with the *Notice to Proceed*. The *Contractor* will proceed with the *Work* diligently, will perform the *Work* generally in accordance with the construction schedules as required by the *Contract Documents* and will achieve *Substantial Performance* of the *Work* on or before September 30th, 2017 subject to the provisions of the *Contract Documents* for adjustments to the *Contract Time*.

1.3 Time shall be of the essence of the *Contract*

ARTICLE 2 CONTRACT DOCUMENTS

2.1 "*Contract Documents*" consist of the documents listed or referred to in Schedule 1, entitled "Schedule of Contract Documents", which is attached and forms a part of this Agreement, and includes any and all additional and amending documents issued in accordance with the provisions of the *Contract Documents*. All of the *Contract Documents* shall constitute the entire *Contract* between the *Owner* and the *Contractor*.

2.2 The *Contract* supersedes all prior negotiations, representations or agreements, whether written or oral, and the *Contract* may be amended only in strict accordance with the provisions of the *Contract Documents*.

ARTICLE 3 CONTRACT PRICE

3.1 The price for the *Work* ("*Contract Price*") shall be the sum in Canadian dollars of the following:

3.1.1 the product of the actual quantities of the items of *Work* listed in the *Schedule of Quantities and Prices* which are incorporated into or made necessary by the *Work* and the Lump Sums listed in the *Schedule of Quantities and Prices*; plus

3.1.2 all lump sums, if any, as listed in the *Schedule of Quantities and Prices*, for items relating

to or incorporated into the *Work*; plus

3.1.3 any adjustments, including any payments owing on account of *Changes* and agreed to *Extra Work*, approved in accordance with the provisions of the *Contract Documents*.

3.2 The *Contract Price* shall be the entire compensation owing to the *Contractor* for the *Work* and this compensation shall cover and include all profit and all costs of supervision, labour, material, equipment, overhead, financing, and all other costs and expenses whatsoever incurred in performing the *Work*.

ARTICLE 4 PAYMENT

4.1 Subject to applicable legislation and the provisions of the *Contract Documents*, the *Owner* shall make payments to the *Contractor*.

4.2 If the *Owner* fails to make payments to the *Contractor* as they become due in accordance with the terms of the *Contract Documents* then interest calculated at 2% per annum over the prime commercial lending rate of the Royal Bank of Canada on such unpaid amounts shall also become due and payable until payment. Such interest shall be calculated and added to any unpaid amounts monthly.

ARTICLE 5 RIGHTS AND REMEDIES

5.1 The duties and obligations imposed by the *Contract Documents* and the rights and remedies available hereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

5.2 Except as specifically set out in the *Contract Documents*, no action or failure to act by the *Owner*, *Contract Administrator* or *Contractor* shall constitute a waiver of any of the parties' rights or duties afforded under the *Contract*, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach under the *Contract*.

ARTICLE 6 NOTICES

6.1 Communications among the *Owner*, the *Contract Administrator* and the *Contractor*, including all written notices required by the *Contract Documents*, may be delivered by hand, e-mail, fax, or by pre-paid registered mail to the addresses as set out below:

The *Owner:*
City of Campbell River
301 St. Ann's Road
Campbell River, BC
V9W 4C7
Attention: Mr. Jason Hartley, P.Eng., Capital Works Manager
E-mail: jason.hartley@campbellriver.ca

The *Contractor*:
TBD

The *Contract Administrator:*
City of Campbell River
301 St. Ann's Road
Campbell River, BC
V9W 4C7
Attention: Mr. Jason Hartley, P.Eng., Capital Works Manager
E-mail: jason.hartley@campbellriver.ca

6.2 A communication or notice that is addressed as above shall be considered to have been received:

6.2.1 immediately upon delivery, if delivered by hand; or

6.2.2 immediately upon transmission if sent and received by fax or e-mail; or

6.2.3 after 5 *Days* from date of posting if sent by registered mail.

6.3 The *Owner* or the *Contractor* may, at any time, change its address for notice by giving written notice to the other at the address then applicable. Similarly if the *Contract Administrator* changes its address for notice then the *Owner* will give or cause to be given written notice to the *Contractor*.

6.4 The sender of a notice by fax or e-mail assumes all risk that the fax or e-mail will be received properly, and the provisions of paragraph 12.5 of the Instructions to Tenderers, Part II apply to the sender for both fax and e-mails.

ARTICLE 7 GENERAL

7.1 This *Contract* shall be construed according to the laws of British Columbia.

7.2 The *Contractor* shall not, without the express written consent of the *Owner*, assign this *Contract*, or any portion of this *Contract*.

7.3 The headings included in the *Contract Documents* are for convenience only and do not form part of this *Contract* and will not be used to interpret, define or limit the scope or intent of this *Contract* or any of the provisions of the *Contract Documents*.

7.4 A word in the *Contract Documents* in the singular includes the plural and, in each case, vice versa.

7.5 This agreement shall ensure to the benefit of and be binding upon the parties and their successors, executors, administrators and assigns.

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

Contractor:

TBD

_____
(FULL LEGAL NAME OF CORPORATION, PARTNERSHIP OR INDIVIDUAL)

_____
(AUTHORIZED SIGNATORY)

_____
(WITNESS)

Owner:

City of Campbell River

_____
(GENERAL MANAGER, FACILITIES AND SUPPLY)

_____
(WITNESS)

SCHEDULE 1

CITY OF CAMPBELL RIVER

Schedule of Contract Documents

The following is an exact and complete list of the *Contract Documents*, as referred to in Article 2.1 of the *Agreement*.

NOTE: The documents noted with "*" are contained in the "Master Municipal Construction Documents - General Conditions, Specifications and Standard Detail Drawings", 2009 PLATINUM edition. All sections of this publication are included in the *Contract Documents*.

The documents noted with "**" are available at www.campbellriver.ca

(a) Agreement;
(b) Addenda;
(c) Supplementary General Conditions;
(d) General Conditions*;
(e) Supplementary Specifications;
(f) Specifications*;
(g) Drawings listed in Schedule 2 to the Agreement;
(h) Supplementary Detail Drawings;
(i) Standard Detail Drawings*;
(j) Executed Form of Tender;
(k) Instructions to Tenderers – Part I;
(l) Instructions to Tenderers – Part II*;
(m) All other Contract Documents;
(n) Supplementary Specifications, City of Campbell River, Design Standards 2010, Appendix A to Subdivision and Development Servicing Bylaw 3419**;
(o) City Campbell River; Approved Utility Product List**.

SCHEDULE 2

CITY OF CAMPBELL RIVER

List of Contract Drawings

(Complete listing of all drawings, plans and sketches which are to form a part of this Contract, other than Standard Detail Drawings and Supplementary Standard Detail Drawings.)

TITLE	DRAWING NO.	SHEET NO.	DATE	REVISION DATE	REVISION NO.
Campbell River Airport Electrical Site Plan Fuel System Supply Package	16-516	5 of 5	16/11/25	17/01/11	1

Appendix 7

SAFETY COVENANT

BETWEEN:

_____ of
(Company Name (Print legibly)

_____
(Address)

_____
(City) (Postal Code)

_____
(Phone no.) (Fax no.)

hereinafter referred to as the "Contractor"

AND: **CITY OF CAMPBELL RIVER**

hereinafter called the "Owner"

WHEREAS:

The Contractor covenants and agrees that when performing any work for the Owner, whether directly as a contractor or indirectly as a sub-contractor, it will adhere to all of the requirements of the Occupational Health and Safety (OHS) Regulation, B.C. Reg. 296/97, as may be amended from time to time, that are applicable to the work being performed, and as well will comply with the provisions of the *Workers Compensation Act, R.S.B.C, 1996, c.492*, as amended (the 'Act').

Without limiting the generality of the foregoing, the Contractor agrees:

1) Before commencing any work for the Owner, the Contractor will consult the OHS Regulation and will determine which provisions of the OHS Regulation is applicable to the work that the Contractor is to perform. The Contractor will strictly comply with all applicable OHS Regulations when performing the work.

2) Before commencing any work for the Owner, the Contractor will review and familiarize itself with any existing policies or procedures developed by the Owner in relation to the work. If in the opinion of the Contractor, by following a policy or procedure that the Owner has established in relation to the work, the Contractor, or an employee of the Contractor or of the Owner, or any other worker, is put at increased risk, the Contractor must request a written change of policy or procedure from the Owner, applicable only to the work the Contractor is to perform, before proceeding with the work. The Owner reserves the right to refuse to amend its policies or procedures in response to any such request where the Owner, after such consultation with WorkSafe BC as the Owner considers necessary, determines that the Owner's policy or procedure does not increase the risk to any worker at the location of the work to be performed, and determines that the

   Contractor's request is unreasonable, or is unnecessary for the protection of workers at the location of the work.

3) To have read every section of the OHS Regulation that pertains to the job at hand, to ensure that it understands the pertinent OHS Regulation and its application to the supervisor(s) and to all of the workers at

the location of the work, and to ensure that each worker under the Contractor's supervision follows the applicable OHS Regulation. To assist Contractors with this task, the City of Campbell River directs them to consult with WorkSafe BC directly, to access the WorkSafe BC Regulations and Policies available on the WorkSafe BC website.

4) To understand, comply with and, to the full extent of the Contractor's lawful authority, to enforce all of the following provisions of the OHS Regulation as they pertains to the job at hand and to the workers employed by the Contractor, and to provide to the owner, at any time upon request, evidence of compliance with the following:

a) Rights & Responsibilities – Occupational Health & Safety Program (Part 3, including investigations, inspections, written instructions, records and statistics, adequate supervision, complete understanding by the workforce of the right and responsibility to refuse unsafe work)
b) General Conditions (Regulation – Part 4)
c) Chemical and Biological Substances (Regulation – Part 5)
d) Substance Specific requirements (Regulation – Part 6)
e) Noise, Vibration, Radiation and Temperature (Regulation – Part 7)
f) Personal Protective Clothing and Equipment (Regulation - Part 8)
g) Confined Space Entry (Regulation – Part 9)
h) Lock-out (Regulation – Part 10)
i) Fall Protection (Regulation – Part 11)
j) Tools, Machinery and Equipment (Regulation – Part 12)
k) Ladders, Scaffolds and Temporary Work Platforms (Regulation – Part 13)
l) Cranes and Hoists (Regulation – Part 14)
m) Rigging (Regulation – Part 15)
n) Mobile Equipment (Regulation – Part 16)
o) Traffic Control (Regulation – Part 18)
p) Electrical Safety (Regulation – Part 19)
q) Construction, Excavation & Demolition (Regulation – Part 20)
r) Forestry Operations (Regulation – Part 26)
s) Evacuation and Rescue (Regulation – Part 32)
t) Occupational First Aid (Regulation – Part 33)
u) Coordination of Multiple Employer Workplaces (Regulation – Part 20, s. 20.3)

PROVISIONS OF THE *WORKERS COMPENSATION ACT* – PART 3 SPECIFIC TO CONTRACTORS ON A WORKSITE:

i. Division 3 – General duties of Employers, Workers and Others (Sections 115, 116, 117, 118, 119, 120, 121, 122, 123, 124);
ii. Division 4;
iii. Division 10.

5) The *Workers Compensation Act* stipulates that the Owner (the City of Campbell River) is required to enforce any observed infraction of the Act or Regulation. The Contractor accepts that the City of Campbell River will be conducting periodic checks of the Contractor during the Contractor's work for the City of Campbell River and will be asking the Contractor to comply with the Act/Regulation in the event that any contravention is observed. If a contravention is observed and not corrected, the Contractor may be asked to leave the worksite and may result in termination of the contract for the work.

6) For the purposes of streamlining large construction projects and multiple employer worksites, the Owner reserves the right to designate a "prime contractor" amongst contractors who are working on a job-site together. A designated person employed by the "prime contractor" – appointed by the Owner - will act as the coordinator of the other contractors on that job-site and will ensure that each of the contractors on the job site are following all of the Act and WorkSafe BC Regulations as well as site-specific policies and procedures. This includes having in place an approved WorkSafe BC Safety Program and a list of the qualified persons amongst the other contractors who have been designated to be responsible for each of the other contractor's site health and safety activities.

7) In the event that a prime contractor has been designated, it is the responsibility of the Contractor to inquire who the "prime contractor" is for the worksite and to comply with the requirements for a multiple employer worksite where a prime contractor has been designated, as set out in the preceding section.

NOTE:

a) Payment of WorkSafe BC Assessments by any Contractor does not obviate the responsibility of the contractor to any of the foregoing.

b) The foregoing constitutes requirements of the Prevention Division of WorkSafe BC for any workplace in the Province of British Columbia and constitutes the Owner's expectations of contractors.

The Contractor covenants and agrees that when performing any work for the Owner, whether directly as a contractor or indirectly as a sub-contractor, it will adhere to all of the requirements of the B.C. Employment Standards Act (RSBC 1996), as may be amended from time to time, that are applicable to the work being performed, including but not limited to:

1) Section 36 (2); an employer must ensure that each employee has at least 8 consecutive hours free from work between each shift worked.

2) Section 39; despite any provision of this Part, an employer must not require or directly or indirectly allow an employee to work excessive hours or hours detrimental to the employee's health or safety.

THIS Covenant made the _____day of _____, 2017, in

_____ in the Province of British Columbia.
(City)

CONTRACTOR:

_____
Company Name

_____
Authorized Signatory

_____
(Printed name)

SUPPLEMENTARY GENERAL CONDITIONS

**TO BE READ WITH "General Conditions"
CONTAINED IN THE PLATINUM EDITION (printed 2009) OF THE PUBLICATION
"MASTER MUNICIPAL CONSTRUCTION DOCUMENTS"**

Reference No.: **TENDER 17-06**

Contract: **AIRPORT ABOVE GROUND FUEL STORAGE SYSTEM**

TABLE OF CONTENTS

DEFINITIONS **1.0**

1.67.1 ***(delete clause 1.67.1 and replace as follows)***
"Substantial Performance" means the stage of completion of all of the *Work*, as certified by the *Payment Certifier*, when:

a) the *Work* is ready for use or is being used for its intended purpose; **and**

b) the total of the incomplete, defective and deficient Work can be completed at an estimated cost of no more than:

3% of the first $500,000 of the *Contract Price*
2% of the next $500,000 of the *Contract Price*
1% of the balance of the *Contract Price*

1.79 ***(add new clause 1.79 as follows)***
"(amend clause X.XX as follows)" preceding a supplementary clause means this clause provides additional information or restrictions to the referenced clause in the Master Municipal Construction Documents, Volume II.

1.80 ***(add new clause 1.80 as follows)***
"(add new clause X.XX as follows)" preceding a supplementary clause means this clause provides additional requirements or information not found in the Master Municipal Construction Documents, Volume II.

1.81 ***(add new clause 1.81 as follows)***
"(delete clause X.XX and replace as follows)" preceding a supplementary clause means this clause replaces the referenced clause in the Master Municipal Construction Documents, Volume II, in its entirety.

1.82 ***(add new clause 1.82 as follows)***
"Payment Certifier" has the meaning set out in SGC 18.6.6.

1.83 ***(add new clause 1.83 as follows)***
"Provide" or "Provision of" means supply and placement of an item.

1.84 ***(add new clause 1.84 as follows)***
"Engineer" shall mean the *Owner's* engineer appointed to provide technical support during the course of the *Work.*

DOCUMENTS **2.0**

Interpretation 2.2.5 ***(add new clause* 2.2.5 *as follows)***
The Contract Drawings shall not be used for the construction of the Work unless Issued For Construction by the *Contract Administrator.*

CONTRACTOR **4.0**

Protection of Work, Property and the Public 4.3.7 ***(add new clause 4.3.7 as follows)***
The *Contractor* shall locate, mark and protect from damage or disturbance, any and all stakes, survey pins, monuments and markers at the *Place of the Work.*

All survey stakes, pins, monuments or markers which, in the opinion of the *Owner*, have been damaged or disturbed shall be made good following construction by a registered B.C. Land Surveyor at the *Contractor's* expense.

Good Neighbour Policy 4.3.8 ***(add new clause 4.3.8 as follows)***
The *Owner's* Good Neighbour Policy as adopted by City of Campbell River Council on April 15, 1997 shall apply to this contract. The Policy states: "That *Contractors* working on Municipal rights-of-way or on private land where new rights-of-way are being created, be required to provide written notice to the residents in the immediate area of the works, describing what is being constructed, when the works will occur, who to contact for more information and what precautions should be taken if necessary; and that the work-site be posted for safety reasons."

Damage to Improvements and Utilities 4.3.9 ***(add new clause 4.3.9 as follows)***
The *Contractor's* Work shall be confined to the *Owner's* premises, including statutory right-of-ways easements and construction permit limits, whenever possible. The *Contractor* shall not enter upon or place materials on other private premises except by written consent of the individual *Owners* and shall save the *Owner* harmless from all suits and actions of every kind and description that might result from use of private property.

Use of Working Site 4.3.10 ***(add new clause 4.3.10 as follows)***
The *Contractor* shall confine his equipment, storage of materials and operation of Work to the limits indicated by law, permits, or direction of the *Contract Administrator*, and shall not unreasonably encumber the premises with his materials. The *Contractor* shall comply with the *Contract Administrator* instructions regarding signs, advertisements, fires and smoking.

The working site shall at all times be kept free of rubbish and unnecessary hazards to persons, materials, and equipment.

Local, Emergency Traffic and Property Access 4.3.11 ***(add new clause 4.3.11 as follows)***
Local traffic shall be provided access to private properties at all times.

Emergency traffic such as Police, Fire, and Disaster Units shall be provided reasonable access at all times. The *Contractor* shall be liable for any damage which may result from his failure to provide such reasonable access.

Traffic Management Plan 4.3.12 ***(add new clause 4.3.12 as follows)***
If required, the *Contractor* shall submit a Traffic Management Plan for Approval prior to start of construction in which the extent and duration of any road closures associated with the work are identified. Two-way traffic via one open lane shall be maintained on public roads at all times unless the *Contractor* has obtained the *Owner's* approval via a Road Closure Permit. The *Contractor* is cautioned that approval of full road closures is not guaranteed. Traffic control on all roads shall be in strict accordance with the Traffic Control Manual for Work on Roadways published by the Ministry of Transportation and Highways. The *Contractor* shall only use appropriately accredited personnel for Traffic Control.

Temporary Structures and Facilities	4.4.3	***(add new clause 4.4.3 as follows)*** The *Contractor* shall provide clean sanitary latrine accommodations for the use of his employees as may be necessary to comply with the requirements and regulations of the Ministry of Health and other bodies having jurisdiction. The *Contractor* shall permit no public nuisance.
Fair Wages	4.8.2	***(add new clause 4.8.2 as follows)*** The *Contractor* attests to compliance with Section 5 of the Skills Development and Fair Wage Act in projects where the provincial contribution to a Municipal project exceeds $250,000.
Truck Routes and Disposal Sites	4.17.1	***(add new clause 4.17.1 as follows)*** In hauling of material to and from the work site, the routes to be followed by trucks shall be confined to designated arterial and collector roads as shown on the road classification plan as issued by the City. Where a dumpsite can only be accessed by way of a local road, the route shall be the shortest possible way from an arterial or collector road, and shall be agreed to by the *Contract Administrator* in advance of the work. The *Contractor* shall be responsible for road cleanup along all trucking routes used in association with the work. The cost of this cleanup shall be paid by the *Contractor* and considered incidental to the work. It should be noted that a "Soil Deposition Permit" is required for any dumpsite within the City of Campbell River. The *Contractor* shall be responsible for obtaining and securing a legal dumpsite. All costs associated with that dumpsite shall be the responsibility of the *Contractor* and shall be considered incidental to the *Work.*
Disposal of Wood Debris, Organic Debris, and/or Waste Excavated Material	4.18.1	***(add new clause 4.18.1 as follows*)** Prior to disposal of any wood debris, organic debris and/or waste excavated material, the *Contractor* shall submit a disposal management strategy in accordance with all applicable Laws, Bylaws and Regulations to the *Contract Administrator* for approval. Subject to the *Contract Administrator's* approval, the *Contractor* shall ensure that all wood debris, organic debris and/or waste excavated material that is removed from the work site is managed in accordance with this approved disposal management strategy. The *Contractor* shall be required to employ acceptable methods of disposal, approved disposal site location(s), and shall be required to obtain and submit copies of all relevant permits and/or approvals prior to the disposal of any wood debris, organic debris and/or waste excavated material Regardless of the aforementioned, the *Owner* reserves the right to disallow any or all of the *Contractor*'s proposed disposal management strategy if it is determined that they will result in undesirable environmental impacts.
OTHER CONTRACTORS	**6.0**	
Coordination and Connection	6.22	***(add new clause 6.2.2 as follows)*** If the performance of any Contract for the project is likely to be interfered with by the simultaneous execution of some other Contract or Contracts, the *Contract Administrator* shall decide which *Contractor* shall cease Work temporarily and which *Contractor* shall continue, or whether the Work under the Contracts can be

coordinated so the Contracts may proceed simultaneously. The *Owner* shall not be responsible for any damages suffered or extra costs incurred by the *Contractor*, resulting directly or indirectly from the award or performance or attempted performance of any other Contract or Contracts on the project, or caused by any decision or omission of the *Contract Administrator* respecting the order of precedence in the performance of the Contracts other than for the extension of time.

VALUATION OF CHANGES AND EXTRA WORK	**9.0**	
Valuation Method	9.2.1.3	***(add new clause 9.2.1.3 as follows)*** Should a lump sum method be used for determination of the value of a *Change*, the *Contractor* shall determine the value of the *Change* by calculating the cost for each item contained within the *Change* and applying a 10% mark up on all costs associated with the *Change* for Overhead and Profit. All costs are required to be supported by documentation satisfactory to the *Contract Administrator* and all applicable rates are to be satisfactory to the *Contract Administrator.*
FORCE ACCOUNT	**10.0**	
Force Account Costs	10.1.1.4	***(delete 10.1.1.4 and replace as follows)*** *Force Account Work* performed by a *Subcontractor* shall be paid for in the lesser of: (i) the amount as provided by subparagraphs (1), (2) and (3) of this GC, plus a markup of 5%, or (ii) the actual amount the *Contractor* pays the *Subcontractor* including a markup of 10% on such actual cost to cover all overhead and profit.
DELAYS	**13.0**	
Liquidated Damages for Late Completion	13.9.1.1	**(*delete 13.9.1.1 and replace as follows***) as a genuine pre-estimate of the *Owner's* increased costs for the *Contract Administrator* and the *Owner's* own staff caused by such delay an amount of $1,000 per day or pro rata portion for each calendar day that actual *Substantial Performance* is achieved after the *Substantial Performance Milestone Date*; plus
PAYMENT	**18.0**	
Holdbacks	18.4.1	***(delete 18.4.1 and replace as follows)*** The *Owner* will retain a holdback but will not establish a Holdback Trust Account pursuant to Section 5 of the *Builders Lien Act.*
Substantial Performance	18.6.5	***(delete clause 18.6.5 and replace as follows)*** The *Owner* will release any builder's lien holdback on the 56th day following the date of *Substantial Performance*, or other date as required by law, but the *Owner* may holdback the amounts for any deficiencies or filed builders liens as provided in GC 18.4.2, GC 18.4.3 and 18.4.4, or the Maintenance Period Financial Security if not received by this date.

Payment Certifier	18.6.6	***(delete clause 18.6.6 and replace as follows)*** The *Contract Administrator*, as defined herein, shall be the *Payment Certifier* responsible under Section 7 of the *Builders Lien Act* for certifying *Substantial Performance* of the *Work* of the *Contractor*, but not the *Work* of *Subcontractor*s. The *Contractor* shall co-operate with and assist the *Contract Administrator* by providing information and assistance in as timely manner as the *Contract Administrator* considers necessary to carry out the duties of the *Payment Certifier* for the Contract. The *Contractor* shall be the *Payment Certifier* responsible under Section 7 of the *Builders Lien Act* for certifying *Substantial Performance* of the *Work* of each *Subcontractor*. Prior to certifying completion for a *Subcontractor*, the *Contractor* shall consult with the *Contract Administrator* and obtain the *Contract Administrator's* comments on the status of completion by the *Subcontractor,* including any deficiencies or defects in the *Subcontractor's Work* noted by the *Contract Administrator*. The *Contractor* will indemnify and save the *Owner* harmless from any and all liability the *Owner* may have to anyone arising out of the certification by the *Contractor* of *Substantial Performance* for that *Subcontractor.* Notwithstanding any other provision of the *Contract,* no payments will be due or owing to the *Contractor* so long as a Lien filed by anyone claiming under or through the *Contractor* remains registered against the Project or any lands, or interest therein, on which *Work* for the project was performed. Failure of the *Contractor* to remove all Liens promptly will entitle the *Owner* to damages.
WORKERS COMPENSATION REGULATIONS	**21.0**	
Contractor is "Prime Contractor"	21.2.2	***(add new clause 21.2.2 as follows)*** If the *Work* is being completed as part of a project for which the *Owner* already has a *Prime Contractor* designated then the *Contractor* will be responsible to ensure that they assume direction from the *Prime Contractor* as per the requirements of the Workers Compensation Act Part 3, Division 3, Section 118(1-3).
INSURANCE	**24.0**	
Required Insurance	4.1.7	***(add new clause 24.1.7 as follows)*** The *Contractor* shall ensure the following are additional named insured under this contract: · The City of Campbell River · Tetra Tech EBA Inc.
MAINTENANCE PERIOD	**25.0**	
Correction of Defects	25.1.4	***(add new clause 25.1.4 as follows)*** The *Owner* is authorized to make repairs to defects or deficiencies if, ten days after giving written notice, the *Contractor* has failed to make or undertake with due diligence the required repairs. However, in the case of emergency where, in the opinion of the *Owner*, delay is not

reasonable, repairs may be made without notice being sent to the *Contractor.* All expenses incurred by the *Owner* in connection with repairs made pursuant to GC 25 shall be paid by the *Contractor* and may be deducted from the Maintenance Security, or other holdbacks. The *Contractor* shall promptly pay any shortfall.

Financial Security 25.4.1 ***(add new clause 25.4.1 as follows)***
within 10 days of the issue of the Certificate of Substantial Performance deliver to the Owner, a Maintenance Period Financial Security in the form of cash or a clean, irrevocable Letter of Credit in a form acceptable to the Owner in the amount of 5% of the Contract Price, issued by a major Canadian chartered bank which has a branch in Campbell River, payable to the Owner within the Maintenance Period.

SUPPLEMENTARY SPECIFICATIONS

TO BE READ IN CONJUNCTION WITH THE "MASTER MUNICIPAL CONSTRUCTION DOCUMENTS"

Reference No.: **TENDER 17-06**

Contract: **AIRPORT ABOVE GROUND FUEL STORAGE SYSTEM**

General

1.1 a) Payments will be made on the basis of the unit prices bid in the Tender, and in accordance with Article 18 of the General Conditions.

b) The unit prices bid, unless specifically noted otherwise, shall include the supply of all *LABOUR*, *PLANT, MATERIAL* and *PRODUCT* equipment necessary to construct *THE WORK* in accordance with the specifications.

c) The prices bid for supply and installation shall be full compensation for supplying, hauling, installing, cleaning, testing, and placing in service together with all other work subsidiary and incidental thereto for which separate payment is not provided elsewhere.

d) Other materials on site, whether existing structures, vegetation, topsoil, gravel, sand or other excavated or piled materials, are the property of the *OWNER* or of the owner of the land on which *THE WORK* is located. Only those materials specifically noted in the specification or on drawings, as belonging to the *CONTRACTOR* shall become the *CONTRACTOR's* property.

e) Where there are excess excavated materials, unsuitable materials excavated or materials of any kind that are excavated but not used in *THE WORK*, such materials are not the property of the *CONTRACTOR* unless authorized in writing by the *CONTRACT ADMINISTRATOR* or specified to be disposed of by the *CONTRACTOR*.

Unit Price Contracts

2.1 a) Payments will be made on the basis of the following:

.1 Unit Price items in the Schedule of Quantities and Unit Prices.
.2 Changes in *THE WORK* for items not covered by unit prices, in accordance with Article 7 - *CHANGES IN THE WORK* of the General Conditions.

b) For each item in the Schedule of Quantities and Unit Prices, the *Contract Administrator* will, in cooperation with the *Contractor*, measure the quantity of the item completed at the end of the

payment period and this will be shown as a percentage of the work completed against the appropriate value for the lump sum assigned to the respective line item.

Mobilization and Demobilization

3.1 a) Mobilization and demobilization shall include the *Contractor's* costs of mobilization at the beginning of the project; and the costs of demobilization at the end of the project.

b) Included in mobilization are such items as bonding, insurance, permits, moving personnel, materials and equipment to the site, setting up temporary facilities, First-Aid, Site Safety, temporary utilities and all preparation for performing *THE WORK*.

c) Included in demobilization are preparation and submission of operation and maintenance manuals, As-Constructed Record Drawings, comprehensive Bill of Materials, removal of all personnel, materials and equipment; and cleanup of the site and *THE WORK*.

Dust Control

4.1 During the performance of *THE WORK*, the *CONTRACTOR* is to at all times keep the worksite and such immediate surrounding areas which it may utilize free from waste materials, debris or rubbish and is to employ adequate dust control measures. Water shall be the only material acceptable for dust suppression. If accumulation of such materials, debris, rubbish or dust constitutes a nuisance or safety hazard or is otherwise objectionable in any way, as reasonably determined by the *OWNER* or *CONTRACT ADMINISTRATOR*, the *CONTRACTOR* is to promptly remove it. If any claim, suit, losses, or action is brought by a person affected by the transportation of materials, equipment, goods or wastes to and from the worksite, the *CONTRACTOR* shall defend, indemnify and hold harmless all indemnified parties.

Underground Utilities

5.1 It is the *CONTRACTOR'S* responsibility wherever necessary to determine location of existing pipes, valves, conduits, vaults, or other underground structures. Wherever it is necessary to explore and excavate to determine the location of the existing underground structures, the *CONTRACTOR,* at his own expense, shall make explorations and excavations for such purposes. The *CONTRACTOR* shall notify the *CONTRACT ADMINISTRATOR* or his representative of any conflicts.

The *CONTRACTOR* shall, at his own expense, provide for the uninterrupted flow of all watercourses, sewers, drains, and any other utility encountered during the work. Water control and siltation control shall be under the direction of a qualified environmental monitor engaged by the *CONTRACTOR*.
When any existing mains and/or service pipes, utility ducts, vaults or other utility structures are encountered, the *CONTRACTOR* shall support them to the satisfaction of the *CONTRACT ADMINISTRATOR* so as to protect them from injury. The *CONTRACTOR* shall, at his own expense, at once repair and make good any injury which may occur to any mains, service or utility

pipes or ducts, or facilities, or to any electrical conductor, telephone, cable or natural gas facility or to any sidewalk, crosswalk as a result of this operation.

Support of power, telephone poles, underground mains, wiring and light standards required to complete the work, shall be the responsibility of the *CONTRACTOR* and completed in accordance with utility company standards. The *CONTRACTOR* shall schedule the work with the appropriate utility company in advance, so as not to delay the work. All costs associated with the work shall be considered incidental and no separate payment be made for this item.

Construction Surveys

6.1 The *CONTRACTOR is responsible for all survey layout, including stakes, hubs, and grade control*. The *CONTRACTOR* shall survey and layout the work including, but not limited to, as-built invert elevations, offsets and stations of all grade changes, miscellaneous appurtenances, and all existing utilities exposed during construction. The *CONTRACTOR* shall provide all stakes, hubs, nails, flagging, and including the supply of casual labour for checking of the work, as required by the *CONTRACT ADMINISTRATOR*. The *CONTRACTOR* shall provide the *CONTRACT ADMINISTRATOR* with records of the actual surveys, and "as-built" information pick-up. No separate or additional payment will be made for this work.

General Coordination

7.1 The *CONTRACTOR* shall work cooperatively with B.C. Hydro, Telus, Shaw and Fortis to locate private utility ducting. No additional payment shall be made for this work.

Supplementary Specifications

8.1 The following Supplementary Specifications are complementary to the MMCD.

Section	Title
01 29 00S	Supplemental Payment Procedures
01 30 01S	Performance Specification
01 31 00S	Construction Schedule and Progress Reports
01 33 00S	Submittals and Reference Forms
26 05 00S	Common Work Results for Electrical
26 05 28S	Grounding – Secondary
26 05 43.01S	Installation of Cables in Trenches and in Ducts
33 65 76S	Direct Buried Underground Cable Ducts
34 43 23.43S	Floodlighting

This section provides "Measurement for Payment" clauses for items not addressed in the MMCD specifications or provides revised/amended clauses for items included in MMCD. These items have a "S" Specification notation in the 'Payment' column of Appendix 1 of the Form of Tender.

Note that any minor items not listed in the Form of Tender but typical for this type of work, such as but not limited to utility locates, exploratory digging, protection of utilities, temporary construction fencing, disposal of waste materials, adjustment of existing surface features or appurtenances, removal and replacement of trees, shrubs and landscaping, public relations, miscellaneous fittings, connections or removals shall be considered incidental to the work and no separate payment will be made.

1. Payment for supply and installation of 1-60,000 litre (L) steel jet fuel aboveground storage tank c/w load/offload cabinets, and controls/monitoring equipment will be lump sum. Payment includes all associated piping, equipment, pumps, and commissioning as noted in the 'Above Ground Storage Tank and System Performance Specification' and 'electrical' specification sections. Payment to include the design (stamped by Professional Engineer BC), manufacture, delivery, installation on new concrete pad, anchoring, installation of all catwalks, steps, hand rails, platforms, testing, inspections, and commissioning of the tank and all related systems (communications, electrical, mechanical) not covered by any other payment items in order to provide a fully operational facility.

2. Payment for supply and installation of the new power / communications kiosk, and two (2) emergency stop buttons will be lump sum. Payment includes supply of appropriately sized split section kiosk for communications / power feeds to fuel system, securing to concrete pad, supply and installation of two (2) emergency stop buttons – one at the kiosk at the fuel facility and one in the Field Electrical Centre (FEC).

3. Payment for connection within the FEC for the new fuel facility will be lump sum. Payment includes all power and communications connections required for the system and as noted on the drawings.

4. Payment for supply and installation of all power and communications cabling will be lump sum. Payment includes the supply and installation of all required cabling within the facility and between the facility and the FEC in underground conduits provided. Payment shall also include supply and installation of any above ground conduit and/or cable trays required within the facility in order to provide a fully operation facility.

5. Payment for connections from the Fuel Site Cabinet to Jet Fuel Offload/Load Cabinet, Power and Control Cabinet, and Fuel Apron Floodlight c/w All Connections, Emergency Switches, will be lump sum. Payment includes all supply, connections, and terminations required to provide a fully operational facility.

6. Payment for new floodlight pole and fixtures will be lump sum. Payment includes supply and installation of pole to required height (on new existing concrete base by Others), light fixtures, and installation of all connections to new electrical cabinet, power splices, testing and commissioning.

7. Payment for Testing and Commissioning of the new electrical systems will be made based on Lump Sum price bid for all testing required to verify the circuits and equipment meet all standards as well as verification that fuel depot and flood light systems are working. Payment includes providing all megger test results during and after completion of the works as well as all other testing required to confirm the integrity of the newly installed system.

END OF SECTION

The Campbell River Airport Above Ground Fuel Storage System will be comprised of the design, supply and installation of 1-60,000 litre (L) double wall steel jet fuel aboveground storage tank c/w all associated piping, equipment, power / communications, kiosk, grounding, all power and communications cables, connections/terminations within the facility and to/from the Field Electrical Centre (FEC), inspection, testing and commissioning. Prices are to include the design, manufacture, delivery, testing, inspections, and commissioning of the tank and all related systems (communications, electrical, mechanical).

A separate project (Civil Works contract) will provide the basic infrastructure for this tank and system including: concrete pads/curbs, drainage, underground conduit, fencing, lighting base, etc.

Coordination between the successful proponent of this work and the Civil Works Contractor will be required to confirm the final locations of underground conduit stubs within the concrete pad, concrete pad size as well as the detail of the grounding system.

Drawing E2.0 shows the location of the fuel tank and associated equipment (schematic).

The storage tank construction and installation must meet or exceed all of the stated specifications. The aboveground storage tank (AST) piping, pumping and electrical/communication systems will meet all applicable federal and provincial regulation and associated codes (e.g. electrical, plumbing, and welding codes).

STORAGE TANK SYSTEM SPECIFICATION

Description	Project Requirements
References	Canadian Environmental Protection Act, 1999, Federal Storage Tank Systems for Petroleum and Allied Petroleum Products Regulation. Registration of Storage Tank with Environment Canada by Owner.
	CSA B836-14, Storage, Handling and Dispensing of Aviation Fuels at Aerodromes
	NRCC, National Fire Code of Canada, 2015
	BC Fire code
	Federal Storage Tank Install CPA 2008l
	Transportation of Dangerous Goods Act
	A full listing of applicable reference documents are included the CCME Environmental Code of Practice for Aboveground and underground Storage Tank Systems and Allied Petroleum Products, Section 1, Table 1: Reference Documents
Submittals	Provide warranty and service information relating to all components of the storage tank system.
	Provide details of the final fuel tank. (Include training manuals)
	Provide details of the company support and contact information for each part of the system after commissioning.

Provide detailed drawings showing the storage tank, fuel load / offload cabinets, and power / communications kiosk. (engineer stamped)

Provide proof of Authorization to Supply & Install above ground storage tank from Authorities Having Jurisdiction.

Provide copies of all necessary test reports required to meet Code of Practice.

Provide 3 references for similar projects including contact name, telephone number, address and email.

Upon award of contract the supplier will be required to submit shop drawings for reviews. The shop drawings will indicate details of construction, appurtenances, installation and leak detection systems. Details will include:

- Size, materials and locations of ladders, ladder cages, platforms/catwalks and lifting lugs
- Tank Capacity and dimensions
- Size and location of fittings.
- Environmental compliance package accessories and spill kit.
- Decals, type, size and location.
- Proposed signage within fenced area and at gate.
- Accessories: provide details and manufacturers product data.
- Size, material and location of manholes.
- Finishes.
- Electronic accessories: provide details and manufacturers product data.
- Insulation types, locations and RSI values.
- Identification, name, address and phone numbers of corrosion expert where applicable.
- Piping, values and fittings: type, materials, sizes, piping connection details, valve shut-off type and location, cathodic protection system complete with stamp of corrosion expert indicating that design complies with standards, Federal and Provincial regulations.
- Spill containment: provide description of methods and show sizes, materials and locations for collecting spills at connection point between storage tank system and delivery truck.
- Thermometers: provide details and manufacturers product data.
- Anchors: description, material, size and locations.
- Level gauging: type and locations, include:
  - Reporting systems, types of reports and report frequency.
  - Number of probes required and sizes.
  - Provide details and manufacturer's product data.
- Ancillary devices: provide details and manufacturer's product data.
- Leak detection interstitial monitoring system (vacuum gauge and liquid sensor), type and locations, and alarm system. Switch at Vacuum Gauges tied into alarm.
- Grounding and bonding: provide details of design, type, materials and locations.

	§ Corrosion protection: provide details of design, type, materials and locations. § AST overfill-protection systems: provide details of design, type, materials and locations.
	Provide maintenance data for tank appurtenances and leakage detection system for incorporation into manual.
Horizontal Above Ground Storage Tank	The project calls for the supply and installation of 1-60,000 L jet fuel aboveground storage tank. The tank will meet the following specifications: § Double wall storage tank, to provide 100% secondary containment § Secondary containment as per CAN/ULC-S601 § Supported above grade level § Built and labelled to the latest ULC code including venting, lifting, and testing. CAN/ULC-S601 latest edition § Internal Finish – Blast cleaned to SSPC-SP10, finished with two coats of lining appropriate to specified aviation fuel type § External Finish – Blast cleaned to SSPC-SP10, finished with two coats of lining appropriate to the type of product including the saddle base supports (supports welded to tank). § Vacuum monitoring c/w guard protection § Remote monitor § 24” ID access manway c/s bolted lid (standard with epoxy) § Seismically anchored to concrete pad § 3” RTF Fill Connection with piping to 600mm from ground level 3” fill c/w camlocks and ball valve in ULC/CSA approved spill box (Morrison or equal) 3” steel check to overfill valve at tank (Suitable for 100 psi) § Submersible Turbine Pump for Jet A offload (1,000L/min. flow capacity.) c/w floating suction adapter § Stainless steel fill/discharge piping, stainless steel ball valve, stainless steel flex line as required. § Tank mounted dip spill collector with 18” diameter and one inch tight fill cap § High level alarm § Clock style level gauge § Overfill protection/prevention valve c/w diffuser. § Upward vent with riser to 12’ above grade § Closed circuit sampler § Floating suction assembly § Access stairs, handrails, single platform to a full tank length catwalk to meet all safety standards § All required decals § Dipstick and gauge chart § One litre of touch up paint
Jet A Offload System	§ Offload Pump: 1,000L/min. flow capacity, Submersible Turbine Pump (STP).

(Tank to Re-fueler)	§ Explosion proof motor c/w pressure/vacuum gauges. § Filter system for truck loading / Offload. Aviation fuel filter to match pump flow rate, air eliminator, pressure differential gauge. § Relaxation line between tank/truck and re-fueler § Provide 2 sets of Spare filters for change out § Fuel sampling connections § Offload to Truck Hose: 8m x 75mm aircraft fueling hose with carter nozzle with solenoid valve, meter c/w preset, hose reel and tank truck overfill system. § Emergency shutoff switch at cabinet and at remote location (Field Electrical Centre, south-west of site) § Pump on/off switch § Interior light with on/off switch
Piping Valves and Fittings	§ Flexible and rigid pipe and fittings used for primary pipe in aboveground service designed, constructed and certified to ULC § Piping located below product level equipped with either manual or automatic shut-off at storage tank (solenoid valve). - Constructed and installed to ANSI / ASME
Level Gauging	§ Tank gauging stick: to manufacturer's standard. § Tank level gauging and indicator. - Mechanical, remote & direct reading device. - Gauge and gauge openings: protected against liquid overflow and possible liquid and vapour release. § Electronic solid state combination tank level sensor and leak detector: console containing visual LED display [and printer] algorithms to automatically compute required operations. System to be programmable for inventorying reporting with following features. - Litres of fuel remaining. - Temperature of fuel. - Millimeters of water in bottom of tank. - Millimeters of fuel in tank. § Fuel delivery report. § Interstitial space leak detection. § Visual and [audible] alarm for: - Overfill. - Low product. - High water. - Theft. - Leaks. § Probe diagnostics. § Leak tests. § Probes and sensors: factory calibrated and pre-set, to suit diameter of tank. § Ancillary devices:

	- Interface capability with remote facility for monitoring and inventory reconciliation. - Security card lock system to select normal operation, setup to enter or change system and tank parameters or operation, or diagnostics to check systems hardware and software.
Veeder Root System	§ Complete veeder root system (or equivalent) - include console and printer, to be located at FEC building. - Input probe faces - Input interface liquid sensors - Module relay outputs - Module site fax - Ethernet card
Overfill and Spill Protection	§ Shop-fabricated AST overfill protection, to 95% capacity. AND 100 PSI CAPABILITY § Automatic valve closure on product supply line, or automatic pump shut-off to terminate petroleum product flow upon detection of high levels in the storage tank. § Overfill protection device compatible with intended method of filling designed, built and certified to ULC with positive shut-off action. § Audible and visual alarm located where personnel are constantly on duty during transfer operation and can promptly stop or divert flow when detected levels are too high. § Level gauge located on storage tank for frequent monitoring throughout transfer operation permitting personnel to promptly shut down flow, or communicate immediately with person controlling delivery for shut down.
Product Transfer Area	§ AST with normal vent and separate emergency vent. - Liquid- and vapour-tight connection on fill pipes for flammable products. § All piping and Fueling Equipment shall be located on the Product Transfer Area.
Signage	§ Provide signage as required at gate and within fence for this type of facility (product identification, no smoking, etc.) along with signage for emergency shut off's.
Power & Communications	§ Supplier will provide all electrical and communications cables, conductors and connections between the storage tank and the Field Electrical Centre (FEC) and within the facility. § Power will be brought to the site under this contract. Supplier to coordinate power cable and breaker sizing, based on fuel system power requirements (any variance to what is shown on the drawings). § Underground Conduit for power and communications within the fuel facility; and between fuel facility and FEC provided by others. § Any above ground conduit or cable trays required for the fuel system shall be provided by the fuel system supplier. § Power & Communications kiosk to be provided by supplier. Kiosk shall have separate section to accommodate power and communications. To be located outside hazardous zone for explosion proof fixtures.

	§ The Kiosk shall include an 8CCT 347 / 600V CDP, C/W 40A Main Breaker § The Kiosk shall include a 15 KVA, 347 / 600V-120/208V Transformer, fed from 3P, 20A Breaker. § The Main Distribution panel on the kiosk shall be 12CCT, 120/208V, 3PH, C/W 40A Main Breaker. § Supplier to confirm all necessary grounding, including static grounding points if required, for installation by the civil works contractor. Equipment ground connections to be installed under this contract. § Supplier to provide floodlight pole, fixtures, and supplementary equipment. The floodlight pole base and conduit is to be provided by others (civil works contractor).
Execution	§ Install tanks in accordance with the most current applicable regulations and manufacturer's recommendations, § Position tanks using lifting lugs and hooks, and where necessary use spreader bars. Do not use chains in contact with tank walls. § Install tanks using certified installers (Petroleum Equipment Installer, Industry Training Authority of British Columbia (ITA). § Provide certification of installation to Contract Administrator (BCBC Letters of Assurance) § Test tanks for leaks to requirements of BC Fire Code and in presence of the Consultant and/or the City of Campbell River. § Where coating is damaged, touch-up with original coating material. § Provide leak and vapour proof caulking at connections. § Shield capillary and tubing connections in heavy duty 50 mm polyethylene pipe. § Calibrate system. § Final approval by approved representative meeting the Authority Having Jurisdiction requirements.
	§ Provide qualification and references and from previous storage tank installation projects (e.g. sample storage tank system drawings)
	§ Provide manufacturers recommended preventative maintenance schedule
	§ Identify proposed training protocols for storage tank operations
	§ Identify warranties for all components
	§ Identify the manuals and software that will be provided, how updates will be provided and support timeframes in the event of a problem
Training	§ Provide training on all commissioned equipment to all personnel as determined by the Owner. Allow up to 10 hours of training on 2 separate days.

END OF SECTION

1.0 GENERAL

1.1 Description

.1 Prepare a time-scaled network schedule using the critical path method. The schedule will provide a basis for determining the progress status of the project relative to the completion time and specific dates and for determining the acceptability of the *CONTRACTOR*'s requests for payment.

1.2 Schedules

.1 Depict all significant construction activities, shop drawing submittals and procurement activities. Show the dependencies between activities so that it may be established what effect the progress of any one activity has on the schedule.

.2 Show completion time and all specific dates and sequencing requirements. Identify activities making up the critical path.

.3 Unless specifically approved by the *CONTRACT ADMINISTRATOR*, show activities on the schedule with a duration not longer than 15 working days or an assigned value not greater than $100,000 (except activities showing only submittal, fabrication or delivery of material or equipment). Divide activities which exceed these limits into more detailed components. Base the scheduled duration of each activity on the work being performed during the normal 40 hour work week with allowances made for legal holidays and normal weather conditions.

1.3 Submittals for Review

.1 Within 10 days of the Notice of Award submit a construction schedule as specified herein showing in detail all procurement and on-site construction activities.

.2 The *CONTRACT ADMINISTRATOR* will review the submitted schedule within 14 working days of its receipt. If the *CONTRACT ADMINISTRATOR* finds that the submitted schedule does not comply with the specified requirements, or does not provide an acceptable schedule detail, the deficiencies will be identified in writing to the *CONTRACTOR* for correction and re-submittal. Correct and resubmit the schedule within 10 working days after the deficiencies have been identified by the *CONTRACT ADMINISTRATOR*.

1.4 Schedule Revisions

.1 Submit proposed revisions to the accepted construction schedule to the *CONTRACT ADMINISTRATOR* for review. Changes in timing for activities may be modified with agreement of the *CONTRACTOR* and *CONTRACT ADMINISTRATOR*. A change affecting the Contract Price, the completion time, or work sequencing may be made only by approved change order.

.2 Add separate activities to the construction schedule for each approved change order.

.3 Should the actual sequence of work performed by the *CONTRACTOR* deviate from the planned sequence indicated in the accepted schedule, the *CONTRACT ADMINISTRATOR* may require the *CONTRACTOR* to revise the schedule to reflect changes in the actual sequence and/or the future sequence of work.

.4 Within 20 days following approval of the *CONTRACTOR*'s testing and commissioning plan submit a schedule revision incorporating the approved plan into the construction schedule.

.5 Submit with each schedule revision all information as called for in submitting the original construction schedule.

1.5 Progress Status Update

.1 Submit an updated schedule on a monthly basis concurrent with the submittal of the progress payment request. Indicate on the updated schedule progress achieved to date on all activities.

2.0 PRODUCTS

.1 Not Used

3.0 EXECUTION

.1 Not Used

END OF SECTION 01 31 00S

1.0 GENERAL

1.1 Categories of Submittals

.1 General requirements and detailed Specifications require various submissions to demonstrate that materials, equipment, methods, and work comply with the provisions and intent of the Contract Documents. Submittals fall into two general categories:

a) Submittals for Review.

b) Submittals for Information Only.

.2 Provide submittals in accordance with this section and as specified in the various technical sections contained throughout the Specifications and Supplemental Specifications.

.3 The *CONTRACT ADMINISTRATOR* may require additional submittals from the *CONTRACTOR* when, in the opinion of the *CONTRACT ADMINISTRATOR*, such additional submittals are warranted.

1.2 Administration

.1 Submittals covered by these requirements include manufacturers' information and data sheets, descriptive data, certificates, product data, shop drawings, test procedures, test results, samples, requests for substitutions, all mechanical, electrical and electronic equipment and systems, fabricated items, piping and miscellaneous work-related submittals.

.2 Adjustments made on shop drawings or other submittals by the *CONTRACT ADMINISTRATOR* are not intended to change the Contract Price. If adjustments affect the value of work, state such in writing to the *CONTRACT ADMINISTRATOR* prior to proceeding with the work.

.3 Provide to *CONTRACT ADMINISTRATOR* for review the submittals specified. Submit all information promptly and in an orderly sequence so as to not cause delay in the Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.

.4 Include the projected dates for Submissions of Submittals for Review in the Construction Schedule specified in Supplementary Specification 01 31 00S

.5 Do not proceed with work affected by any submittal until review is complete. Normally, submittals for review and comment will be returned to the *CONTRACTOR* within 15 days, 30 days for substitution, exclusive of any time awaiting clarification or further information; however, the time for returns will necessarily vary and may exceed 15 days depending upon the complexity of the submittal, the number of submittals, and the express needs of the *CONTRACTOR*.

.6 Review submittals prior to submission to the *CONTRACT ADMINISTRATOR*. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the

requirements of the Work and the Contract Documents. Submittals not stamped, signed, dated and identified by the *CONTRACTOR* will be returned without being examined and will be considered rejected.

.7 Clearly edit submittal documents to indicate only those items, models, or series of equipment, which are being submitted for review. Cross out or otherwise obliterate all extraneous materials.

.8 Ensure that there is no conflict with other submittals.

.9 Coordinate submittals among subcontractors and suppliers.

.10 Coordinate submittals with the Work so that work will not be delayed and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another.

.11 The *CONTRACTOR* is responsible for the accuracy and completeness of information submitted. Notify *CONTRACT ADMINISTRATOR* in writing of materials, equipment or methods of work which deviate from the Contract Documents. Notification in writing, to accompany submittal transmittal and noted under deviations.

.12 The *CONTRACTOR*'s responsibility for errors, omissions and deviations in submission is not relieved by the *CONTRACT ADMINISTRATOR*'s review of submittals.

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

.14 Detail all shop drawings and data sheets using the metric system. Prepare to a drafting standard equivalent to the Contract Drawings.

.15 Shop drawings and data sheets indicating modified design requirements or design requirements not included in the Contract Documents require the seal of a qualified Professional Engineer, registered in the Province of British Columbia.

1.3 Transmittal Procedure

.1 Accompany all submittals with transmittal form 01 33 00-A attached.

.2 Use a separate form for each specific item, class of material, equipment, and items specified in separate, discrete sections, for which the submittal is required. Identify Contract Document, equipment numbers, equipment descriptors, drawing numbers, and Specification Sections for each submittal and item in each submittal.

.3 Identify submittal documents common to more than one piece of equipment with all the appropriate equipment numbers.

.4 Use a single form for submittals for various items when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.

.5 Note a unique number, sequentially assigned, on the transmittal form accompanying each item submitted. Submittals will be classified according to categories agreed to by the *CONTRACTOR* and *CONTRACT ADMINISTRATOR*. Use the following format by category for submittal numbers: "XXX", where "XXX" is the sequential number assigned by the *CONTRACTOR*. Resubmittals will have the following format: "XXX-Y", where "XXX" is the originally assigned submittal number and

"Y" is a sequential letter assigned for resubmittals, i.e., A, B, or C being the 1st, 2nd, and 3rd resubmittals, respectively. Submittal 25B, for example, is the second resubmittal of submittal 25.

1.4 Submittals for Review

.1 All submittals, except where specified to be submitted for information only, to be submitted by the *CONTRACTOR* to the *CONTRACT ADMINISTRATOR* for review. Provide submittals for review for all equipment and material substitutions, alternatives or deviations from that specified.

.2 Submittals which do not have all the information required to be submitted, including notation of all deviations from the Contract requirements, are not acceptable and will be returned without review.

.3 Review by the *CONTRACT ADMINISTRATOR* is for the sole purpose of ascertaining conformance with the general design concept in accordance with the Specifications. This review does not mean that the *CONTRACT ADMINISTRATOR* approves the detail design inherent in the submittals, shop drawings and data sheets, responsibility for which remains with the *CONTRACTOR*, and such review does not relieve the *CONTRACTOR* of responsibility for errors or omissions in the shop drawings and data sheets or of responsibility for meeting all requirements of the Contract Documents. The *CONTRACTOR* is responsible for dimensions to be confirmed and correlated at the job-site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of the work of all sub-trades.

.4 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 coordinated, regardless of the section under which the adjacent items will be supplied and installed. Indicate cross references to Contract Drawings and Specifications.

.5 Submit 3 copies of submittals, except where other quantities are specified, including shop drawings for each requirement requested in Specification sections and as the *CONTRACT ADMINISTRATOR* may reasonably request. Electronic submissions are acceptable in a PDF format as long as they are accompanied by the required transmittal form.

.6 Submittals for review will be returned to the *CONTRACTOR* with one of the four following notations:

a) If the review indicates that the material, or equipment complies with the Contract Documents, submittal copies will be marked "Reviewed". In this event, the *CONTRACTOR* may begin to implement the work method or incorporate the material or equipment covered by the submittal.

b) If the review indicates limited modifications are required, copies will be marked "Reviewed as Modified". The *CONTRACTOR* may begin implementing the work method or incorporating the material and equipment

covered by the submittal in accordance with the noted corrections. Where submittal information will be incorporated in operation and maintenance data, provide a corrected copy.

c) If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked "Revise and Resubmit". Do not undertake work covered by this submittal until it has been revised, resubmitted and returned marked either "Reviewed" or "Reviewed as Modified".

d) If the review indicates that the material, equipment, or work method does not comply with the Contract Documents, copies of the submittal will be marked "Rejected - See Remarks". Submittals with deviations which have not been identified clearly may be rejected. Do not undertake the work covered by such submittals until a new submittal is made and returned marked either "Reviewed" or "Reviewed as Modified".

.7 After submittals are stamped "Reviewed" or "Reviewed as Modified", no further revisions are permitted unless re-submitted to the *CONTRACT ADMINISTRATOR* for further review.

.8 If upon review by the *CONTRACT ADMINISTRATOR*, no errors or omissions are discovered or if only minor corrections are made, 1 copy will be returned and fabrication and installation of work may proceed. If shop drawings and data sheets are rejected, noted copy and 1 unmarked copy will be returned and resubmission of corrected shop drawings and data sheets, through the same procedure indicated above, to be performed before fabrication and installation of work may proceed.

.9 The *OWNER* may deduct, from payments due to *CONTRACTOR*, costs of additional Engineering reviews incurred if shop drawings and data sheets are not corrected after one (1) review by *CONTRACT ADMINISTRATOR*.

1.5 Submittals for Information Only

.1 Where specified, furnish submittals to the *CONTRACT ADMINISTRATOR* for information only at least 30 days prior to commencement of the work covered by the submittal. Submittals for information only will be used by the *CONTRACT ADMINISTRATOR* for general information and filed without comment. The *CONTRACT ADMINISTRATOR* retains the right to return submittals for information only if the submittal does not comply with the Contract Documents and general design criteria.

.2 Submittals for information only are not subject to review procedures. They are to be provided as part of the Work under the Contract and their acceptability determined under normal inspection procedures.

.3 Submit 3 copies of information only submittals including product data, manufacturer's standard data sheets or brochures for requirements requested in Specification Sections and as the *CONTRACT ADMINISTRATOR* may reasonably request where shop drawings will not be prepared due to standardized manufacture of product.

.4 Submit operation and maintenance information in accordance with Section 01 74 16S. Obtain from each manufacturer specific equipment record data, performance data and maintenance requirements.

.5 Where specified submit engineering calculations sealed by a qualified Professional Engineer, for information only.

1.6 Request for Substitution

.1 Make requests for substitution by written application accompanied with sufficient information as specified under Section 01 23 10S to permit the *CONTRACT ADMINISTRATOR* to identify the nature and scope of the request.

.2 Follow submittal procedures and submit 3 copies of all information for each substitution request.

.3 Upon receipt of written application for substitution from the *CONTRACTOR*, including the specific information specified, the *CONTRACT ADMINISTRATOR* will estimate the cost and time requirement of evaluating the request and present the estimates to the *CONTRACTOR*. The *CONTRACTOR* is advised that the estimates are based upon the best information available to the *CONTRACT ADMINISTRATOR* at the time; however, the actual cost, based on time and expense, will be documented and applied in the final analysis of the substitution request.

.4 If the *CONTRACTOR* wishes the *CONTRACT ADMINISTRATOR* to continue the review of the request, advise the *CONTRACT ADMINISTRATOR* in writing and submit sufficient additional information as may be requested by the *CONTRACT ADMINISTRATOR*. No evaluation will take place until such time as the *CONTRACTOR* has agreed to the estimate in writing and has authorized the *CONTRACT ADMINISTRATOR* to deduct the cost of the evaluation from monthly progress payments due the *CONTRACTOR*.

2.0 PRODUCTS

.1 Not Used

3.0 EXECUTION

.1 Not Used

01 33 00-A SUBMITTAL TRANSMITTAL FORM:

Submittal Description: _____ Submittal No:[1] _____

Spec Section: _____

TO: ATTN:	Routing	Sent	Received
OWNER:	Contractor/CM		
PROJECT:	CM/DECS		
	DECS/CM		
CONTRACTOR:	CM/Contractor		

We are sending you
- ¨ Attached
- ¨ Under separate cover via

- ¨ Submittals for Review (RVU)
- ¨ Submittals for information only (INF)
- ¨ Substitution (SUB)
- ¨ Operation & Maintenance Information (O&M)

Remarks: _____

Item	Copies	Date	Section No.	Description	Review action[a]	Reviewer initials	Review comments attached

[a] Attach additional sheets if necessary. REV= Reviewed; RAM= Reviewed as Modified; RAR= Revise and Resubmit; REJ= Rejected

Contractor

Certify either A or B:

¨ A.We have verified that the material or equipment contained in this submittal meets all the requirements, including coordination with all related work, specified (no exceptions).

¨ B.We have verified that the material or equipment contained in this submittal meets all the requirements specified except for the attached deviations.

No.	Deviation

Certified by: _____
Contractor's Signature

[1] See Clause 01 30 00S-1.3, Transmittal Procedure.

01 33 00-B NAME PLATE SCHEDULE:

Quantity		Type/Size	*Colour	Inscription	Location

CONTRACT: SHEET __ OF

*Colour to be denoted as background/lettering colour i.e. yellow/black or Y/B.

01 33 00-C MARKER/LEGEND SCHEDULE:

Quantity	Size	*Colour	Legend	Pictogram

CONTRACT: SHEET ___ OF

*Colour to be denoted as background/legend colour i.e. yellow/black or Y/B.

01 33 00-D EQUIPMENT INSTRUMENTATION DATA RECORD FORM

GENERAL DATA

Equipment Number:		Equipment Location:	
Equipment Description:		Serial Number:	
Model Number:		Style Number:	
MANUFACTURER:			
Street Address:			
City:		State/Province:	Zip/Postal Code:
Phone #:		Fax #:	
MANUFACTURER's Contact		Phone #:	
VENDOR			
Street Address:			
City:		State/Province	Zip/Postal Code:
Phone #:		FAX #:	
VENDOR's Contact:		Phone #:	
Date I/S:	Date of Warr:	P.O. #:	Purchase Cost:

TECHNICAL DATA (Complete all areas where applicable)

	Alternate to Specifications - Check (_) if Applicable	CSA Approved Classification
Mounting:		Accuracy
Power Requirements:		
Materials of Construction:		
Wetted Parts Material		

ADDITIONAL SPECIFICATIONS/NOTES

01 33 00-E EQUIPMENT MECHANICAL DATA RECORD FORM

Form Colour: CANARY

GENERAL DATA

Equipment Number:		Equipment Location:	
Equipment Description:		Serial Number:	
Model Number:		Style Number:	
MANUFACTURER:			
Street Address:			
City:		State/Province:	Zip/Postal Code:
Phone #:		Fax #:	
MANUFACTURER's Contact		Phone #:	
VENDOR			
Street Address:			
City:		State/Province	Zip/Postal Code:
Phone #:		FAX #:	
VENDOR's Contact:		Phone #:	
Date I/S:	Date of Warr:	P.O. #:	Purchase Cost:

TECHNICAL DATA (Complete all areas where applicable)

Size:	Weight	
R.P.M.	Design BHP:	Impeller Diameter:
Rotation/Discharge:	Bearing Lubrication:	
Bearing Numbers and Quantity:		
Applicable Tolerances:		
Oil/Air Filters		
PACKING/SEAL DATA		
Style:	Make:	
Size:	Cooling:	
Lubrication:	Lip Seals:	
Seal Type/Numbers:		
ADDITIONAL VALVE DATA		
Valve Seat Material:	Valve Seat Number:	
DRIVE DATA: COUPLING		
Make:	Size:	
Type:		
DRIVE DATA: V-BELT		
Make:	Belts:	
Driver:	Driven:	

01 33 00-F EQUIPMENT ELECTRICAL DATA RECORD FORM

GENERAL DATA

Equipment Number:		Equipment Location:	
Equipment Description:		Serial Number:	
Model Number:		Style Number:	
MANUFACTURER:			
Street Address:			
City:		State/Province:	Zip/Postal Code:
Phone #:		Fax #:	
MANUFACTURER's Contact		Phone #:	
VENDOR			
Street Address:			
City:		State/Province	Zip/Postal Code:
Phone #:		FAX #:	
VENDOR's Contact:		Phone #:	
Date I/S:	Date of Warr:	P.O. #:	Purchase Cost:

TECHNICAL DATA (Complete all areas where applicable)

GENERAL				
Nominal Voltage	Phase:	Frequency:	kW:	kVA(r):
P.F.:	Amps:	Ambient Temperature:	Temperature Rise:	
Nominal Efficiency:	Insulation Class:	Insulation Type:	BIL:	
Weight:	Enclosure Type:	Enclosure Dimensions (H x W x D):		
CSA Approved Hazard Classification:	Class:	Division:	Group:	
ADDITIONAL MOTOR DATA				
Synch RPM:	HP:	Frame:	LRA:	Service Factor:
Design Letter:	KVA Code:	Duty:	Guaranteed Minimum Efficiency @ Full Load:	
Winding Heater Volts:		Winding Heater Watts:		
Over Temp. Sensor Type:	DE Bearing:	ODE Bearing:		
ADDITIONAL TRANSFORMER DATA				
Secondary Volts:		Winding Connection: HV:	LV:	
% Impedance (Z):		Type (ANN, ONAN, Etc.)		
ADDITIONAL BREAKER DATA				
Interrupting Rating:	Momentary Rating:	Frame Size:		
Thermal Trip Range:		Instantaneous Trip Range:		
ADDITIONAL STARTER DATA				
Overload Setting Range:				
Contactor Rating Size:		HP:	Amps:	

ADDITIONAL SPECIFICATIONS/NOTES

Form Colour: GREEN

01 33 00-G EQUIPMENT MAINTENANCE REQUIREMENT DATA RECORD FORM

GENERAL DATA

Equipment Number:		Equipment Location:	
Equipment Description:		Serial Number:	
Model Number:		Style Number:	
MANUFACTURER:			
Street Address:			
City:		State/Province:	Zip/Postal Code:
Phone #:		Fax #:	
MANUFACTURER's Contact		Phone #:	
VENDOR			
Street Address:			
City:		State/Province	Zip/Postal Code:
Phone #:		FAX #:	
VENDOR's Contact:		Phone #:	
Date I/S:	Date of Warr:	P.O. #:	Purchase Cost:

GENERAL AND PREVENTATIVE MAINTENANCE REQUIREMENTS

MAINTENANCE REQUIREMENTS							
LUBRICANTS							
Recommended:							
Alternative:							

ADDITIONAL SPECIFICATIONS/NOTES

01 33 00-H Spare Parts and Special Tools List (Form 1 of 2)

Specification Section	Equipment Description	Equipment Name	Manufacturer	Model #	Quantity	Spare Parts Required	Box Tag Number

Note: Although presented on two 215 mm x 280 mm pages, Form 01750-A should be completed on a 280 mm x 432 mm page.

01 33 00-H Spare Parts and Special Tools List (Form 2 of 2)

Manufacturers Part Number	Special Storage Requirements	Contractor Scheduled Delivery Date	ABR Acceptance Date/Name	District Receipt Date/Name

Note: Although presented on two 215 mm x 280 mm pages, Form 01750-A should be completed on a 280 mm x 432 mm page.

END OF SECTION 01 33 00S

Part 1 General

1.1 RELATED SECTIONS

.1 Section 26 05 28S – Grounding – Secondary

.2 Section 26 05 43.01S – Installation of Cables in Trenches and Ducts

.3 Section 33 65 76S– Direct Buried Underground Cable Ducts

.4 Section 34 43 23.43S – Floodlighting

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CSA C22.1-15, Canadian Electrical Code, Part 1 (23rd Edition), Safety Standard for Electrical Installations.

.2 CAN3-C235-83(R2006), Preferred Voltage Levels for AC Systems, 0 to 50,000 V.

.3 Underground Systems: To C22.3, No. 7, except where specified otherwise.

.2 Institute of Electrical and Electronics (IEEE)/National Electrical Safety Code Product Line (NESC)

.1 IEEE SP1122-[2000], The Authoritative Dictionary of IEEE Standards Terms, 7th Edition.

1.3 DEFINITIONS

.1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

1.4 DESIGN REQUIREMENTS

.1 Operating voltages: to CAN3-C235.

.2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.

.1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

.3 Language operating requirements: provide identification nameplates and labels for control items in English.

1.5 SUBMITTALS

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

.2 Shop drawings:

.1 Submit drawings stamped for all major electrical equipment being supplied under this contract. Shop drawings shall be submitted to the engineer/owner for review, prior to installation.

.2 Submit wiring diagrams and installation details of equipment indicating proposed location, layout and arrangement, control panels, accessories, piping, ductwork, and other items that must be shown to ensure co-ordinated installation.

.3 Identify on wiring diagrams circuit terminals and indicate internal wiring for each item of equipment and interconnection between each item of equipment.

.4 Indicate on drawings clearances for operation, maintenance, and replacement of operating equipment devices.

.5 Submit 3 copies of 216 x 279 mm minimum size drawings and product data to engineer/owner. Alternatively, shop drawings may be submitted in PDF electronic document format.

.6 All shop drawings must be certified by the manufacturer and carefully checked by the Trade Contractor noting all changes required and shall bear the Trade Contractor's approval stamp and signature. Shop drawings must be clearly labelled as to job, contractor and manufacturer. All stamps and labelling shall appear on the front of the shop drawings in order to reproduce properly. Drawings shall incorporate a minimum 100 mm x 75 mm space to accept the Engineer's review stamp.

.7 The Electrical Consultant's review of shop drawings is for general design only, and does not relieve the Trade Contractor, Trade Sub-Contractor or suppliers from their responsibilities for errors, proper fittings, construction of the work and furnishing of materials. The review shall not be construed as approving departures from the contract document requirements, where such departures are not specifically noted in a covering letter accompanying such drawings. Any work done prior to the return of properly reviewed shop drawings is done at the risk of the Contractor.

.8 Note that a MINIMUM of seven (7) working days is required by the Electrical Consultant to process shop drawings. The Trade Contractor is, therefore, requested to submit all shop drawings with this in mind in ample time in order to avoid unnecessary delay of shipment of materials or construction.

.9 If changes are required, notify engineer/owner of these changes before they are made.

.3 Quality Control:

.1 Provide CSA certified equipment and material.

.2 Where CSA certified equipment and material is not available, submit such equipment and material to local inspection authorities for special approval before delivery to site. Cover all costs for special approval.

.3 Submit test results of installed electrical systems and instrumentation.

.4 Permits and fees: in accordance with General Conditions of contract.

.5 Submit, upon completion of Work, load balance report as described in PART 3 - LOAD BALANCE.

.6 Submit certificate of acceptance from authority having jurisdiction upon completion of Work to engineer/owner.

.4 Record Drawings

.1 Engineer will provide two sets of white prints for record drawing purposes.

.2 Maintain project record drawings and record accurately deviations from Contract documents.

.3 Record changes in red. Mark on one set of prints and at completion of project and prior to final inspection, neatly transfer notations to second set, and submit both sets to Engineer.

.4 Record the following information:

.1 Any existing cables, services, etc., encountered which vary from those shown on contract drawings as existing;

.2 Horizontal location of underground cables and appurtenances referenced to permanent surface improvement;

.3 Field changes of dimension and detail.

.4 Changes made by Change Order or Field Order.

1.6 QUALITY ASSURANCE

.1 Qualifications: electrical Work to be carried out by qualified, licensed electricians who hold valid Master Electrical Contractor license or apprentices (BC Certification) in accordance with authorities having jurisdiction respecting manpower vocational training and qualification.

.1 Employees registered in provincial apprentices program: permitted, under direct supervision of qualified licensed electrician, to perform specific tasks.

.2 Permitted activities: determined based on training level attained and demonstration of ability to perform specific duties.

.2 Site Meetings:

.1 In accordance with Contract Documents.

.3 Health and Safety Requirements: do construction occupational health and safety in accordance with OH&S / local requirements.

.4 Electrical Permit: Coordinate and pay for all required electrical permits.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Material Delivery Schedule: provide owner/engineer schedule within 2 weeks after award of Contract. Contractor to be on site to receive deliveries.

1.8 SYSTEM STARTUP

.1 Instruct owner/engineer in operation, care and maintenance of systems, system equipment and components.

.2 Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel.

.3 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with all aspects of its care and operation.

1.9 OPERATING INSTRUCTIONS

.1 Provide for each system and principal item of equipment as specified in technical sections for use by operation and maintenance personnel.

.2 Operating instructions to include following:

.1 Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.

.2 Start up, proper adjustment, operating, lubrication, and shutdown procedures.

.3 Safety precautions.

.4 Procedures to be followed in event of equipment failure.

.5 Other items of instruction as recommended by manufacturer of each system or item of equipment.

.3 Print or engrave operating instructions and frame under glass or in approved laminated plastic.

.4 Post instructions where directed.

.5 For operating instructions exposed to weather, provide weather-resistant materials or weatherproof enclosures.

.6 Ensure operating instructions will not fade when exposed to sunlight and are secured to prevent easy removal or peeling.

Part 2 Products

2.1 MATERIALS AND EQUIPMENT

.1 Material and equipment to be CSA certified. Where CSA certified material and equipment are not available, obtain special approval from local inspection authorities before delivery to site and submit such approval as described in PART 1 - SUBMITTALS.

.2 Factory assemble control panels and component assemblies.

2.2 WARNING SIGNS

.1 Warning Signs: in accordance with requirements of authority having jurisdiction / inspection authorities.

.2 Decal signs, minimum size 175 x 250 mm.

2.3 WIRING TERMINATIONS

.1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors. Penatrox to be used on aluminum connections.

2.4 EQUIPMENT IDENTIFICATION

.1 Identify electrical equipment with nameplates and labels as follows:

.1 Nameplates: lamicoid 3 mm thick plastic engraving sheet, white face, black core, mechanically attached with self tapping screws.

.2 Sizes as follows:

NAMEPLATE SIZES

Size 1	10 x 50 mm	1 line	3 mm high letters
Size 2	12 x 70 mm	1 line	5 mm high letters
Size 3	12 x 70 mm	2 lines	3 mm high letters
Size 4	20 x 90 mm	1 line	8 mm high letters
Size 5	20 x 90 mm	2 lines	5 mm high letters
Size 6	25 x 100 mm	1 line	12 mm high letters
Size 7	25 x 100 mm	2 lines	6 mm high letters

.2 Labels: embossed plastic labels with 6 mm high letters unless specified otherwise.

.3 Wording on nameplates and labels to be approved by owner/engineer prior to manufacture.

.4 Allow for average of twenty-five (25) letters per nameplate and label.

.5 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.

.6 Disconnects, starters and contactors: indicate equipment being controlled and voltage.

.7 Terminal cabinets and pull boxes: indicate system and voltage.

.8 Transformers: indicate capacity, primary and secondary voltages.

2.5 WIRING IDENTIFICATION

.1 For indoor wiring, identify wiring with permanent lamicoid indelible identifying markings, numbered or coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.

.2 Maintain phase sequence and colour coding throughout.

.3 Colour coding: to CSA C22.1.

.4 Use colour coded wires in communication cables, matched throughout system.

2.6 CONDUIT AND CABLE IDENTIFICATION

.1 Colour code conduits, boxes and metallic sheathed cables.

.2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.

.3 Colours: 25 mm wide prime colour and 20 mm wide auxiliary colour.

	Prime	Auxiliary
up to 250 V	Yellow	
up to 600 V	Yellow	Green
up to 5 kV	Yellow	Blue
up to 15 kV	Yellow	Red
Telephone	Green	
Other Communication Systems	Green	Blue
Fire Alarm	Red	
Emergency Voice	Red	Blue
Other Security Systems	Red	Yellow

.4 Underground cables: Provide lamicoid tags, black face with white core, fastened to cables with black nylon ties, for all cables in pulpits to indicate the function/purpose of each cable, including the following:

.1 Each cable entering and leaving pull box.

.2 All straight-through cable in pull boxes.

2.7 FINISHES

.1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.

.1 Paint outdoor electrical equipment “international orange” to EEMAC Y1-1 unless otherwise specified.

.2 Paint indoor switchgear and distribution enclosures light gray to EEMAC 2Y-1 unless otherwise specified.

Part 3 Execution

3.1 INSTALLATION

.1 Do complete installation in accordance with CSA C22.1 except where specified otherwise.

.2 Do overhead and underground systems in accordance with CSA C22.3 No.1 except where specified otherwise.

3.2 NAMEPLATES AND LABELS

.1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

3.3 CONDUIT AND CABLE INSTALLATION

.1 Install conduit and sleeves prior to pouring of concrete.

.1 Sleeves through concrete: Rigid steel, size as indicated and protruding as indicated on drawings.

.2 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation and fire stop opening.

.3 Install cables, conduits and fittings embedded or plastered over, close to building structure so furring can be kept to minimum.

3.4 LOCATION OF OUTLETS

.1 Locate outlets in accordance with Section 26 05 32 - Outlet Boxes, Conduit Boxes and Fittings.

.2 Do not install outlets back-to-back in wall; allow minimum 150 mm horizontal clearance between boxes.

.3 Change location of outlets at no extra cost or credit, providing distance does not exceed 3000 mm, and information is given before installation.

.4 Locate light switches on latch side of doors.

.1 Locate disconnect devices in mechanical and elevator machine rooms on latch side of door.

3.5 MOUNTING HEIGHTS

.1 Mounting height of equipment is from finished floor to centreline of equipment unless specified or indicated otherwise.

.2 If mounting height of equipment is not specified or indicated, verify before proceeding with installation.

.3 Install electrical equipment at following heights unless indicated otherwise.

.1 Local switches: 1400 mm.

.2 Wall receptacles:

.1 General: 300 mm.

.2 Above top of continuous baseboard heater: 200 mm.

.3 Above top of counters or counter splash backs: 175 mm.

.4 In mechanical rooms: 1400 mm.

.3 Panelboards: as required by Code or as indicated.

.4 Telephone and interphone outlets: 300 mm.

.5 Wall mounted telephone and interphone outlets: 1500 mm.

.6 Fire alarm stations: 1500 mm.

.7 Fire alarm bells: 2100 mm.

.8 Television outlets: 300 mm.

.9 Wall mounted speakers: 2100 mm.

.10 Clocks: 2100 mm.

.11 Door bell pushbuttons: 1500 mm.

3.6 CO-ORDINATION OF PROTECTIVE DEVICES

.1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

3.7 FIELD QUALITY CONTROL

.1 Load Balance:

.1 Measure phase current to panelboards with normal loads (lighting) operating at time of acceptance; adjust branch circuit connections as required to obtain best balance of current between phases and record changes.

.2 Measure phase voltages at loads and adjust transformer taps to within 2% of rated voltage of equipment.

.3 Provide upon completion of work, load balance report as directed in PART 1 - SUBMITTALS: phase and neutral currents on panelboards, dry-core transformers and motor control centres, operating under normal load, as well as hour and date on which each load was measured, and voltage at time of test.

.2 Conduct following tests:

.1 Power distribution system including phasing, voltage, grounding and load balancing.

.2 Circuits originating from branch distribution panels.

.3 Lighting and its control.

.4 Motors, heaters and associated control equipment including sequenced operation of systems where applicable.

.5 Insulation resistance testing:

.1 Megger circuits, feeders and equipment up to 350 V with a 500 V instrument.

.2 Megger 350-600 V circuits, feeders and equipment with a 1000 V instrument.

.3 Check resistance to ground before energizing.

.6 Calibrate and adjust the settings of regulators as per manufacturer's recommendations. Ensure the supply voltage corresponds to the input tap. Check that the open circuit protector de-energizes the circuit within 2 or 3 seconds when load is disconnected.

.3 Carry out tests in presence of owner/engineer.

.4 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

.5 Manufacturer's Field Services:

.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.

.2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

.3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.8 CLEANING

.1 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.

.2 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 26 05 00S – Common Work Results – Electrical

1.2 REFERENCES

.1 Canadian Standards Association, (CSA International)

Part 2 Products

2.1 EQUIPMENT

.1 Rod electrodes: Ground Rods / Electrodes:

- .1 Copper clad steel, 19mm diameter x 3m long, or
- .2 Plate electrodes: 300mm x 300mm x 15mm copper plate. Only to be used where it is not possible to install rod type electrode, and only with the permission of the engineer / owner.

.2 Grounding conductors: bare stranded copper, soft annealed, , #8 AWG (or size as required by CEC), or as otherwise indicated.

.3 Insulated grounding conductors: green, type TW, #8 AWG (or size as required by CEC).

.4 Non-corroding accessories necessary for grounding system, type, size, material as indicated, including but not necessarily limited to:

- .1 Grounding and bonding bushings.
- .2 Protective type clamps.
- .3 Bolted type conductor connectors.
- .4 Thermite welded type conductor connectors.
- .5 Bonding jumpers, straps.
- .6 Pressure wire connectors.

Part 3 Execution

3.1 INSTALLATION GENERAL

.1 Install complete permanent, continuous grounding system including electrodes, conductors, connectors, and accessories. Where indicated, run ground wire in conduit.

.2 Install connectors in accordance with manufacturer's instructions.

.3 Protect exposed grounding conductors from mechanical injury.

.4 Make buried connections, and connections to conductive water main, electrodes, using copper welding by thermite process, permanent mechanical connectors, or inspectable wrought copper compression connectors to ANSI/IEEE 837.

.5 Use mechanical connectors for grounding connections to equipment provided with lugs.

.6 Soldered joints not permitted.

.7 Install bonding wire for flexible conduit, connected at both ends to grounding bushing, solderless lug, clamp or cup washer and screw. Neatly cleat bonding wire to exterior of flexible conduit.

.8 Install flexible ground straps for bus duct enclosure joints, where such bonding is not inherently provided with equipment.

.9 Install separate ground conductor to outdoor lighting standards.

.10 Make grounding connections in radial configuration only, with connections terminating at single grounding point. Avoid loop connections.

.11 Ground secondary service pedestals.

3.2 MANHOLES

.1 Install conveniently located grounding stud, electrode, size 6 stranded copper conductor in each manhole. Ensure lids are grounded.

.2 Install ground rod in each manhole so that top projects through bottom of manhole. Provide with lug to which grounding connection can be made.

3.3 ELECTRODES

.1 Install rod electrodes and make grounding connections. Ground rods to be installed at all new pull box locations, new floodlight poles, and new equipment locations.

.2 Bond separate, multiple electrodes together.

.3 Make special provision for installing electrodes that will give acceptable resistance to ground value where rock or sand terrain prevails. Ground as indicated.

3.4 EQUIPMENT GROUNDING

.1 Install grounding connections to typical equipment included in, but not necessarily limited to following list: Service Equipment, Transformer, Light Poles.

3.5 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00 - Common Work Results - Electrical.

.2 Perform ground continuity and resistance tests using method appropriate to site conditions and to approval of engineer and local authority having jurisdiction over installation.

.3 Perform tests before energizing electrical system.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 26 05 00S - Common Work Results - Electrical.

1.2 REFERENCES

.1 Canadian Standards Association, (CSA International)

.2 Insulated Cable Engineers Association, Inc. (ICEA)

1.3 WASTE MANAGEMENT AND DISPOSAL

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

.2 Unused sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

.3 Divert unused metal and wiring materials from landfill to metal recycling facility as approved by owner/engineer.

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

Part 2 Products

2.1 Cables

.1 Power cables to be size and type indicated, suitable for intended usage.

.2 Power and communications cables to specialized fuel system equipment to be vendor specified and suitable for the intended usage and installation environment.

.3 All cables to be CSA approved.

Part 3 Execution

3.1 SITE PREPARATION AND STOCKPILING

.1 Remove obstructions from surfaces to be excavated.

.2 Stockpile granular materials in areas designated by Engineer.

.3 Protect granular materials from contamination.

3.2 TRENCHING

.1 Advise Engineer in advance of excavation operations.

.2 Excavate to depth indicated.

.3 Wall of trench to be vertical as much as possible so that a minimum of shoulder surface is disturbed.

.4 Dispose of surplus and unsuitable excavated material and rocks at the Airport facility at an area approved by the Engineer.

.5 Bottom of trench to be level and free from loose, soft, or coarse aggregate and organic matter.

.6 When a boulder or rock is encountered, remove to a depth of at least 80 mm below the required cable depth and replace with granular bedding material.

.7 Trenches shall be excavated only to the extent that cables can be installed and the trench backfilled as per Item 3.3 in the same working day.

3.3 BACKFILLING

.1 Do not proceed with backfilling operations until the Engineer has inspected and given approval.

.2 Areas to be backfilled are to be free from debris.

.3 Place and compact granular materials in continuous horizontal layers.

.4 At locations 200 mm above counterpoise, provide underground protective hazard tape as outlined in Item 2.3.1.

.5 If, during progress of work, granular materials do not meet approval, replace and retest at no extra cost to the Owner.

.6 Backfill and compact, level with adjacent finished surface.

3.4 CABLE INSTALLATION IN DUCTS

.1 Install cables as indicated in ducts.

.1 Do not pull spliced cables inside ducts.

.2 Install multiple cables in duct simultaneously.

.3 Use CSA approved lubricants of type compatible with cable jacket to reduce pulling tension.

.4 To facilitate matching of colour coded multi-conductor control cables reel off in same direction during installation.

.5 Before pulling cable into ducts and until cables are properly terminated, seal ends of lead covered cables with wiping solder; seal ends of non-leaded cables with moisture seal tape.

.6 After installation of cables, seal duct ends with duct sealing compound.

.7 All cables shall go through to pull pits, and all terminations shall be at pull pits.

.8 Where applicable, ensure integrity and sealing of installations is suitable for hazardous locations.

3.5 MARKERS

.1 NOT USED.

3.6 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00 - Common Work Results - Electrical.

.2 Perform tests using qualified personnel. Provide necessary instruments and equipment.

.3 Check phase rotation and identify each phase conductor of each feeder.

.4 Check each feeder for continuity, short circuits and grounds.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 26 05 00S – Common Work Results – Electrical

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 QUALITY ASSURANCE

.1 Quality assurance submittals:

.1 Certificates: signed by manufacturer certifying materials comply with specified performance characteristics and physical properties.

.2 Manufacturer's Instructions: for installation and special handling criteria, installation sequence, and cleaning procedures.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Delivery and Acceptance Requirements:

.1 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.

Part 2 Products

2.1 RIGID STEEL DUCTS

.1 Rigid Steel: suitable for use in hazardous locations / in locations subject to fuelling operations, sizes as indicated.

.2 Rigid Steel bends, couplings, and associated equipment to make a complete installation.

2.2 PVC DUCTS AND FITTINGS

.1 Rigid PVC duct: Schedule 40, with moulded fittings, for direct burial, sizes as indicated.

.2 Rigid PVC bends, couplings, reducers, bell end fittings, plugs, caps, and adaptors same product material as duct, to make a complete installation.

.3 Rigid PVC 90 degrees, 45 degrees bends and 5 degrees angle couplings as required.

2.3 SOLVENT WELD COMPOUND

.1 Solvent cement for PVC duct joints.

2.4 CABLE PULLING EQUIPMENT

.1 6 mm stranded nylon pull rope tensile strength 5 kN.

2.5 WARNING TAPE

.1 Standard 4-mil polyethylene 76 mm wide tape, yellow with black letters, imprinted with "CAUTION BURIED ELECTRIC CABLE BELOW ".

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

.1 Install duct in accordance with manufacturer's instructions and at elevations as indicated.

.2 Clean inside of ducts before laying.

.3 Ensure full, even support, every 1.5m throughout duct length.

.4 Slope ducts with 1 to 400 minimum slope.

.5 Ensure all duct joints are solvent welded or sealed.

.6 Install plugs and cap both ends of ducts to prevent entrance of foreign materials during and after construction.

.7 Pull through each duct a wooden mandrel not less than 300 mm long and of diameter 6 mm less than internal diameter of duct, followed by stiff bristle brush to remove sand, earth and other foreign material.

.1 Pull stiff bristle brush through each duct immediately before pulling-in cables.

.8 Install a pull rope continuous throughout each duct run with 3 m spare rope at each end.

.9 Place continuous strip of warning tape 300 mm above duct before backfilling trenches.

.10 Install markers as required.

.11 Notify the owner/engineer for field review upon completion of direct buried ducts and obtain acceptance prior to backfill.

3.3 CLEANING

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

END OF SECTION

Part 1 General

1.1 RELATED WORK

.1 Electrical General Requirements: Section 26 05 00S – Electrical General Requirements

1.2 REFERENCES

.1 CSAC22.2 No9-M1989 Luminaires.

.2 CAN/CSA-G40.21-M92 Structural Quality Steels.

.3 CSAG164-M92 Hot Dip Galvanizing of Irregularly Shaped Articles.

.4 CSAW47.1-92 Certification of Companies for Fusion Welding of Steel Structures.

.5 CSAW59-M1989 Welded Steel Construction (Metal Arc Welding).

.6 CAN/CGSB-1.59-M89 Enamel, Exterior, Gloss, Alkyd Type.

1.3 SHOP DRAWINGS AND PROJECT DATA

.1 Submit shop drawings for all products in this section.

.2 Submissions should indicate vertical and horizontal beam spreads, beam lumens, beam efficiency and complete photometric data as shown in independent laboratory tests. Submit independent laboratory tests and results of computerized lighting analysis indicating average horizontal and vertical lighting levels and average to minimum for areas designated.

Part 2 Products

2.1 GENERAL

.1 Floodlights to be in conformance with DOT specificationK-336 (AK-63-09-148) and CSAC22.2No9.

2.2 LIGHT FIXTURE

.1 Lamp: 120V, LED
  .1 Lithonia Aeris LED A51, 63B530 / 50K, SR5, 120V

.1 Light pole to be 7.6m, 150mm x 150mm square tube, c/w all mounting hardware and provisions for fixture mounting.

.2 Anchor bolts: provide bolt template. Hot-dipped galvanized to CAN/CSAG164.

.3 Pole primer: hot dipped galvanized to CAN/CSAG164, and CGSB1-GP-178a.

.4 Pole finish: second and third coats to CAN/CGSB-1.59.

.5 Maximum wind loading resistance for pole and attached cross arms: 160km per hour with gust factor of 1.3.

.6 Pole handhole: minimum 100mm by 250mm, with ground lug, gasketted cover, stainless steel bolts, located approximately 450mm above base of pole.

.7 Pole fabrication and crossarm attachment by welding to CSAW.59. Fabrication to meet certification requirements of CSAW47.1.

.8 Pole supply shall include engineered drawings, suitable for the conditions at the Campbell River Airport.

2.3 LIGHTING CONTROL

.1 Photocell Control.

.2 Three position selector switch (hand-off-auto) and lighting contactor located in the equipment kiosk.

2.4 FUSE AND FUSEHOLDERS

.1 Fuseholders, "in-the-line" type, 2pole, for fuses at each pole controlling each circuit with:

.1 Waterproof enclosure of moulded plastic.
.2 Line side and load side sections.
.3 Terminals: sized to accept indicated conductors.

2.5 GROUND RODS

.1 Copper clad steel, 20mm diameter by 3m long.

2.6 GROUND CONNECTION

.1 Connect ground conductors to ground rod with exothermic welding process.

Part 3 Execution

3.1 INSTALLATION

.1 Install floodlights to manufacturer's instructions and as indicated.

.2 Aim and align energized floodlights as indicated during darkness and in Engineer's presence.

.3 Lock floodlights in final aiming position after Engineer's approval.

3.2 FLOODLIGHT ASSEMBLIES

.1 Mount floodlight fixtures on floodlight assemblies as indicated.

3.3 POLES

.1 Mount on bases as indicated.

3.4 CONTROLS

.1 Install contactor's controlling circuits as indicated.

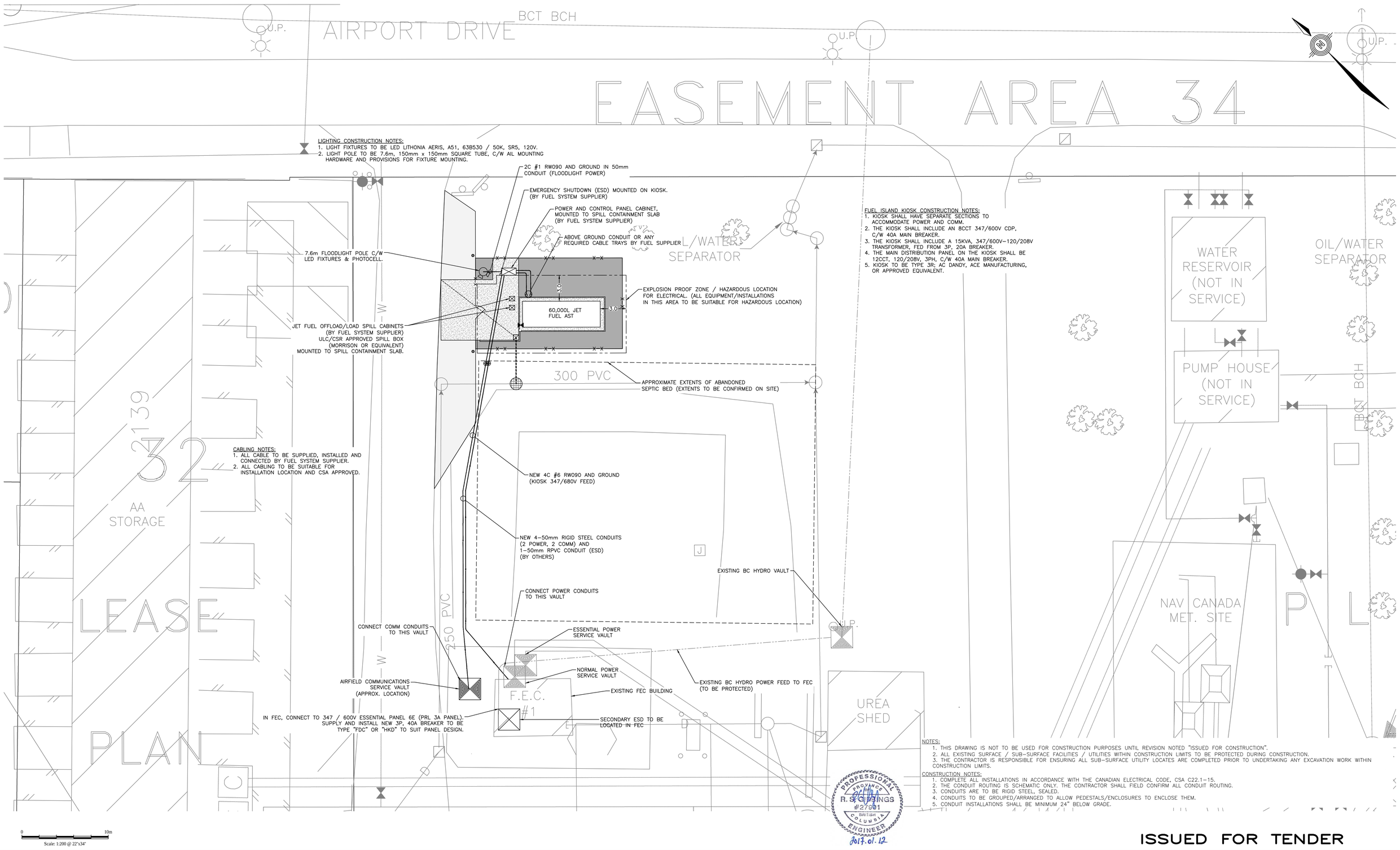
.2 Connect coil circuit to manual bypass toggle switches.

3.5 FUSES AND FUSEHOLDERS

.1 Install a fuseholder for each circuit inside each pole and locate near hand-hole near bottom of pole.

.2 Install fuses, size as required / recommended by vendor.

END OF SECTION



NOTES:
1. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNTIL REVISION NOTED "ISSUED FOR CONSTRUCTION".
2. ALL EXISTING SURFACE / SUB–SURFACE FACILITIES / UTILITIES WITHIN CONSTRUCTION LIMITS TO BE PROTECTED DURING CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL SUB–SURFACE UTILITY LOCATES ARE COMPLETED PRIOR TO UNDERTAKING ANY EXCAVATION WORK WITHIN CONSTRUCTION LIMITS.

CONSTRUCTION NOTES:
1. COMPLETE ALL INSTALLATIONS IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE, CSA C22.1–15.
2. THE CONDUIT ROUTING IS SCHEMATIC ONLY. THE CONTRACTOR SHALL FIELD CONFIRM ALL CONDUIT ROUTING.
3. CONDUITS ARE TO BE RIGID STEEL, SEALED.
4. CONDUITS TO BE GROUPED/ARRANGED TO ALLOW PEDESTALS/ENCLOSURES TO ENCLOSE THEM.
5. CONDUIT INSTALLATIONS SHALL BE MINIMUM 24" BELOW GRADE.

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — R. S. GIBBINGS #27901
2017.01.12

ISSUED FOR TENDER

NO.	REVISION	APP'D BY	DATE	CONST'D BY	DATE
1	ISSUED FOR TENDER	RG	17/01/11		
0	ISSUED FOR 95% REVIEW	RG	16/11/25		

EXISTING	LEGEND	DESIGN
TEL	U/G TELEPHONE	TEL
BCH	U/G HYDRO	BCH
GAS	NATURAL GAS	GAS
S	SANITARY SEWER	S
D	STORM DRAIN	D
W	WATER MAIN	W
P	PAVEMENT	P
C	CURB & GUTTER	C
	SIDEWALK	
O.D.	OPEN DITCH	O.D.
S.M.H. D.M.H.	SANI. SEWER, STORM DRAIN, MANHOLE	S.M.H. D.M.H.
SIDE INLET / TOP INLET	CATCH BASIN	SIDE INLET / TOP INLET
HYD.	FIRE HYDRANT	HYD.
W.V.	WATER VALVE	W.V.
U.P.	UTILITY POLE	U.P.

DESIGNED: AE	SCALE: H:1:200
DRAWN: MR	DATE: 16/11/23
CHECKED: RG	DATE: 16/11/23
APPROVED: RG	DATE: 16/11/25

TETRA TECH

E2.0

TITLE:
NEW FUEL FACILITY
CAMPBELL RIVER AIRPORT
ELECTRICAL SITE PLAN
FUEL SYSTEM SUPPLY PACKAGE

DRAWING NO. 16–516
PROJECT: TRN.AIRP03030.01
SHEET 5 OF 5
REV. 1

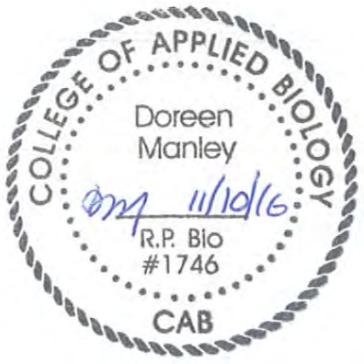
City of Campbell River
Airport Fuel Facility
Environmental Impact Assessment

Prepared for:

City of Campbell River
301 St. Ann's Road
Campbell River, BC V9W 4C7

Prepared by:

Dori Manley, RPBio, and
Monica Stewardson, RPBio, CPESC



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November 2016

Table of Contents

1.0 Introduction

An environmental impact assessment was completed on October 25, 2016 to evaluate the potential impacts associated with a proposed fuel facility located at the Campbell River Airport. The assessment was completed at the request of the City of Campbell River in order to address the requirements outlined in the City of Campbell River Sustainable Official Community Plan (SOCP)[1]. Although construction works completed by the CCR are exempt from the formal development approval process, works occurring in areas designated as Environmental Development Permit Areas (Map 9[1]) must be completed in accordance with the assessments and recommendations of a qualified environmental professional (QEP). This report will satisfy this requirement and provide recommended measures for the protection of any identified environmentally sensitive areas (ESAs) in the vicinity of the proposed facility.

The proposed facility is located outside of the Urban Containment Boundary within the Comprehensive Development Permit Area (DPA) identified for the protection of the natural environment, its ecosystems and biological diversity. The goals of this DPA are as follows:

- Reduce impacts to Environmentally Sensitive Areas (ESAs).
- Minimize air, land and water pollution.
- Protect and maintain the urban forest.
- Minimize the loss of sensitive ecosystem inventory sites.

The development property is located on Airport Drive and is zoned as Airport One (A-1), which is designated for aviation-related uses. Proposed development activities are the installation of a 60,000 L jet fuel storage tank and transfer area. An aircraft fuel depot is a permitted use under this zoning.

This report provides the results of the environmental impact assessment (EIA) that was conducted for the proposed development activities focussing on the goals and objective of the general environmental development permit area.

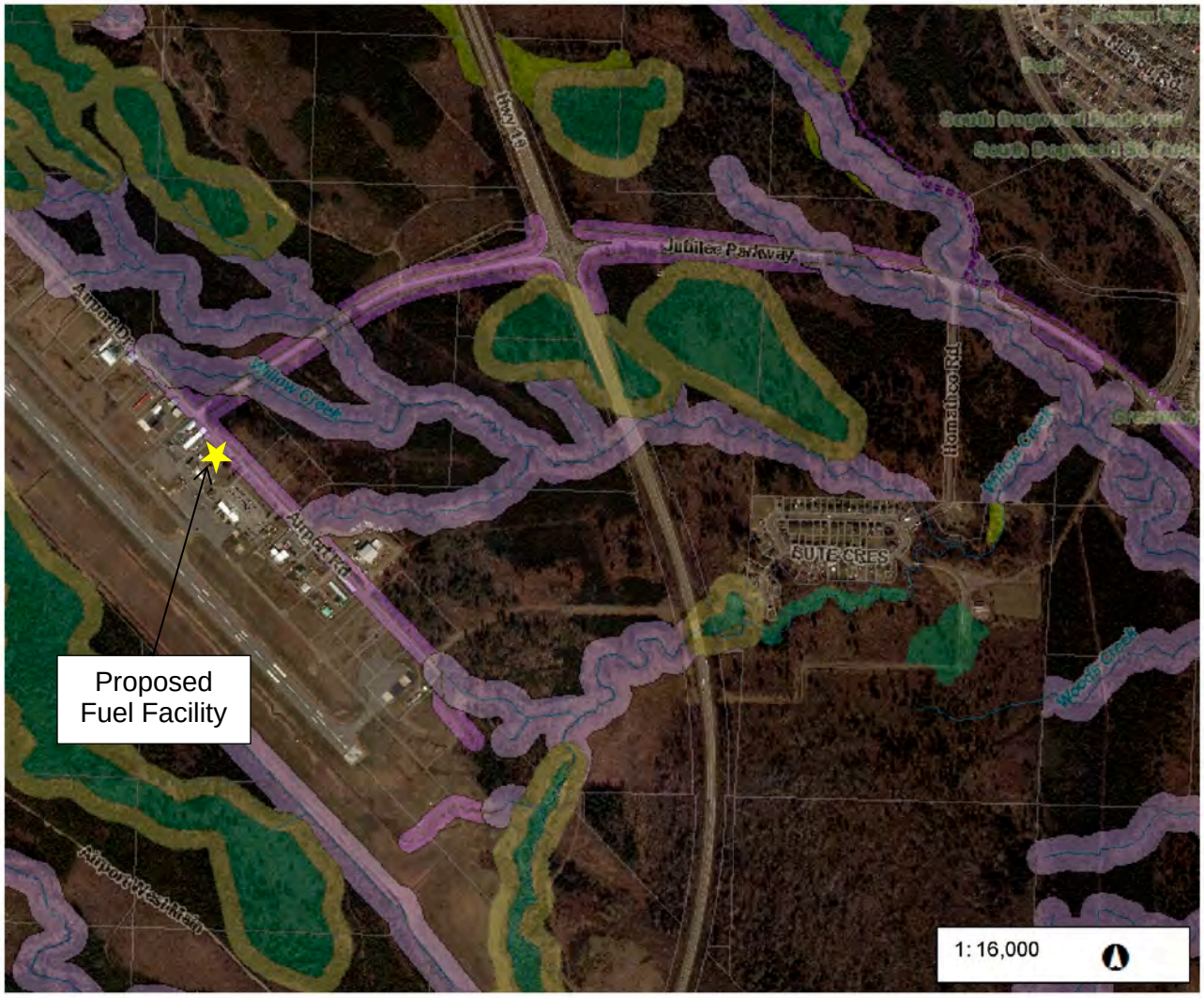
1.1 Survey Area and Proposed Development

The property is located within the City of Campbell River, adjacent to the airport (Figure 1). The assessment area included the proposed development site as identified on the site plan and habitat in the vicinity of the proposed project to determine and evaluate potential environmental

[1] City of Campbell River Sustainable Official Community Plan. Schedule "A" to Bylaw No. 3475, 2012.

impacts resulting from the proposed construction and operation of the fuel storage facility (Figure 2). The proposed development activities include the installation of a 60,000L skid mounted above ground storage jet fuel tank. The double walled tank will be installed on a concrete slab surrounded by gravel and fully fenced. The proposed location is on the west side of Airport Drive with access via an existing gravel driveway. Operation of the facility will include trucks accessing the tank via the gravel driveway to transfer fuel.

Figure 1. A 2016 airphoto showing the location of the proposed fuel facility (yellow star) at the Campbell River Airport in relation to mapped ESAs.



Legend

- Urban Containment Boundary
- Bald Eagle DP Area
- Ditches
- Creeks and Streams
- Ditches (Non-RAR)
- Wetlands
- Sensitive Ecosystem Inventory Wetlands
- Creek or Stream Areas
- Ditch Areas
- Sensitive Ecosystem Inventory
  - Older Forest
  - Riparian
  - Wetland
  - Older Second Growth Forest
  - Sparsely Vegetated
  - Terrestrial Herbaceous

320 0 320 640 Meters

NAD_1983_UTM_Zone_10N

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

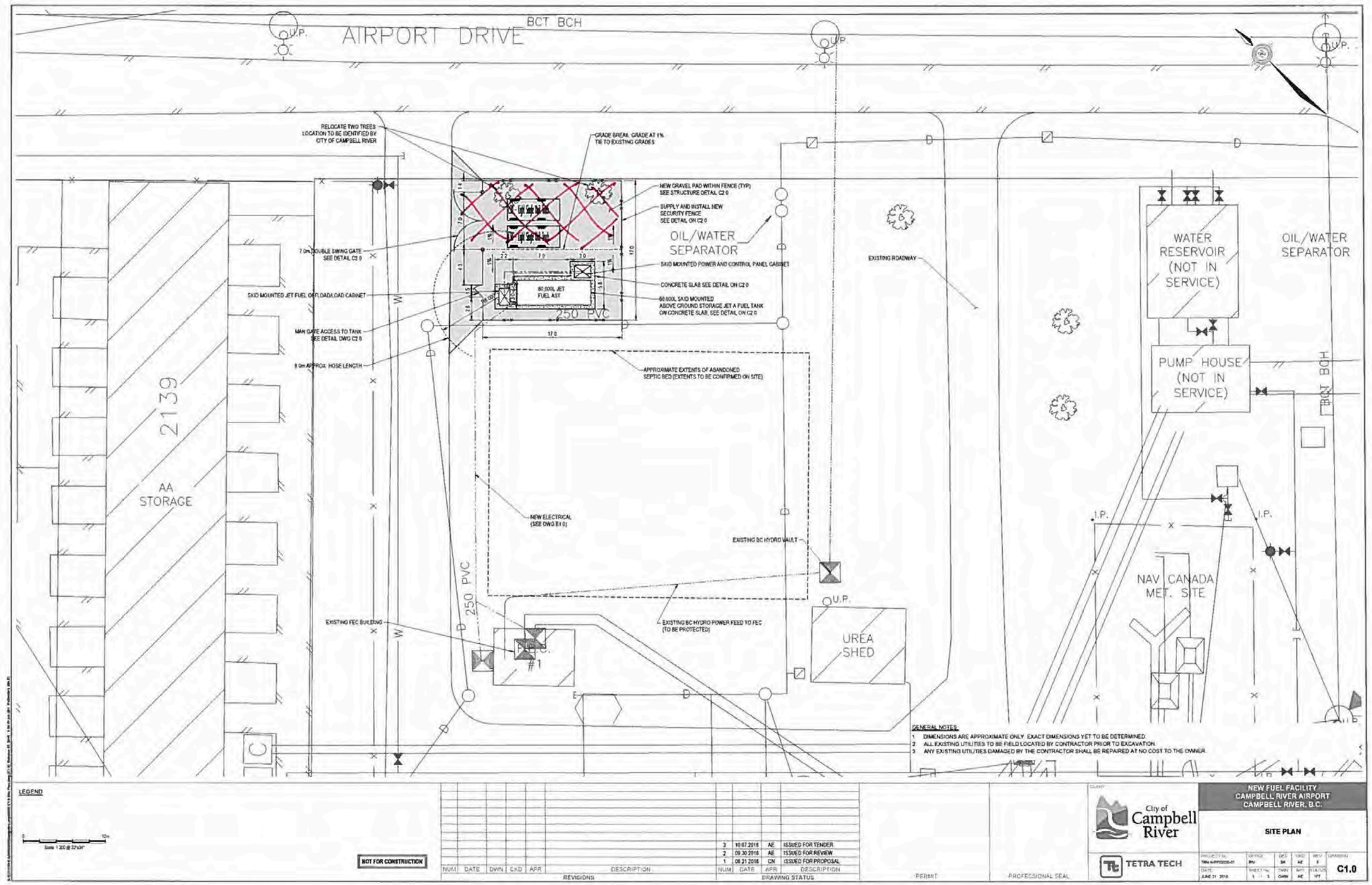


Figure 2. The Site Plan for the Airport Fuel Facility at the Campbell River Airport.

2.0 Methods

2.1 Background Data Review

The background data review involved searches for existing material relating to environmentally sensitive areas, including wildlife habitat or sensitive ecosystems, within the study area. The scope of the search was limited to any identified sensitive habitat within 200 m of the proposed facility. Sources reviewed included:

- Habitat Wizard to determine known fish species present within adjacent streams,
- City of Campbell River SOCP interactive webmap which includes data collected through the Sensitive Ecosystem Inventory (1998) and known locations of Bald Eagle nest trees,
- Wildlife Tree Stewardship database which documents known Bald Eagle and Osprey nests, and
- Species at Risk data from the BC Conservation Data Center (CDC).

2.2 Field Assessment

The environmental impact assessment was conducted on October 25, 2016 and included a field assessment of the property to evaluate the current site condition and identify any sensitive habitats present or unmapped drainages and wetlands.

The assessment area was defined as the portions of the property where development activities are proposed and the surrounding habitat within 50 m of the proposed facility that could be affected by construction activities and operation of the fuel facility. The assessment of adjacent drainages was not limited to 50 m and included any connected surface drainages extending to known natural streams and freshwater fish habitat. Data collected during the environmental impact assessment included:

- Existing site conditions and vegetation present,
- Previous disturbance and development,
- Slope gradient of property,
- Proximity of proposed development to any ESAs,
- Drainage network connections.

The information collected during the field assessment was then reviewed in context with the proposed development to evaluate the potential for environmental impacts as a result of those activities with respect to the guidelines established in the Sustainable Official Community Plan.

3.0 Assessment Results

The observations and data collected during the background data review and field assessment of the airport fuel facility location are presented below.

The proposed development is located adjacent to the Campbell River Airport in an area of existing development directly adjacent to a storage facility and buildings providing airport services (Figure 1). The project location is bound by Airport Drive to the east, a gravel driveway to the north and grass to the west and south. The footprint of the facility is currently mowed lawn in a section of the property that is flat and level (Photo 1). There are only three trees present on the property where the fuel facility is proposed and they will remain (Photo 2).

There were no surface drainages or wetlands present on the west side of Airport Drive or adjacent to the proposed facility location (Photo 3). There was no surface drainage present on the opposite side of Airport Drive adjacent to the proposed fuel facility as mapped by the CCR (Figure 1). The site assessment was completed under wet conditions during a period of wet weather. There was some standing water present on the west side of Airport Drive opposite the proposed site but there was no flow or defined channel banks (Photo 4). The closest surface drainage is a roadside ditch present on the east side of Airport Drive that begins south of the proposed facility (Figure 3). This surface drainage is located 32 m from the proposed fuel facility location. The ditch flows to the south within a defined channel with extensive instream vegetation including grasses and rushes growing over organic substrate (Photo 5). The low gradient (1%) ditch had a water depth of 20 cm at the time of the assessment, following heavy rain, with some deeper sections at culvert outlets. The right bank of the ditch was defined by the Airport Drive road shoulder and was approximately 1 m in height while the left bank was also well defined but lower in height, ranging from 0.2-0.5 m. The ditch width ranged from 0.5 m to a maximum of 3 m. Approximately 475 m downstream of the proposed fuel facility there is a manually operated culvert block in place to prevent downstream flow if necessary (Photo 6). The ditch continues to the south and eventually connects with the southern branch of Willow Creek (WSC: 920-614400) 880 m downstream of the proposed fuel facility. Coho salmon have been confirmed within Willow Creek upstream of this connection point[2] (Figure 3).

Existing storm drains present adjacent to the proposed fuel facility include three open grated catch basins located adjacent on the west side of Airport Drive (Figure 4). There is an existing

[2] HabitatWizard: http://maps.gov.bc.ca/ess/sv/habwiz/

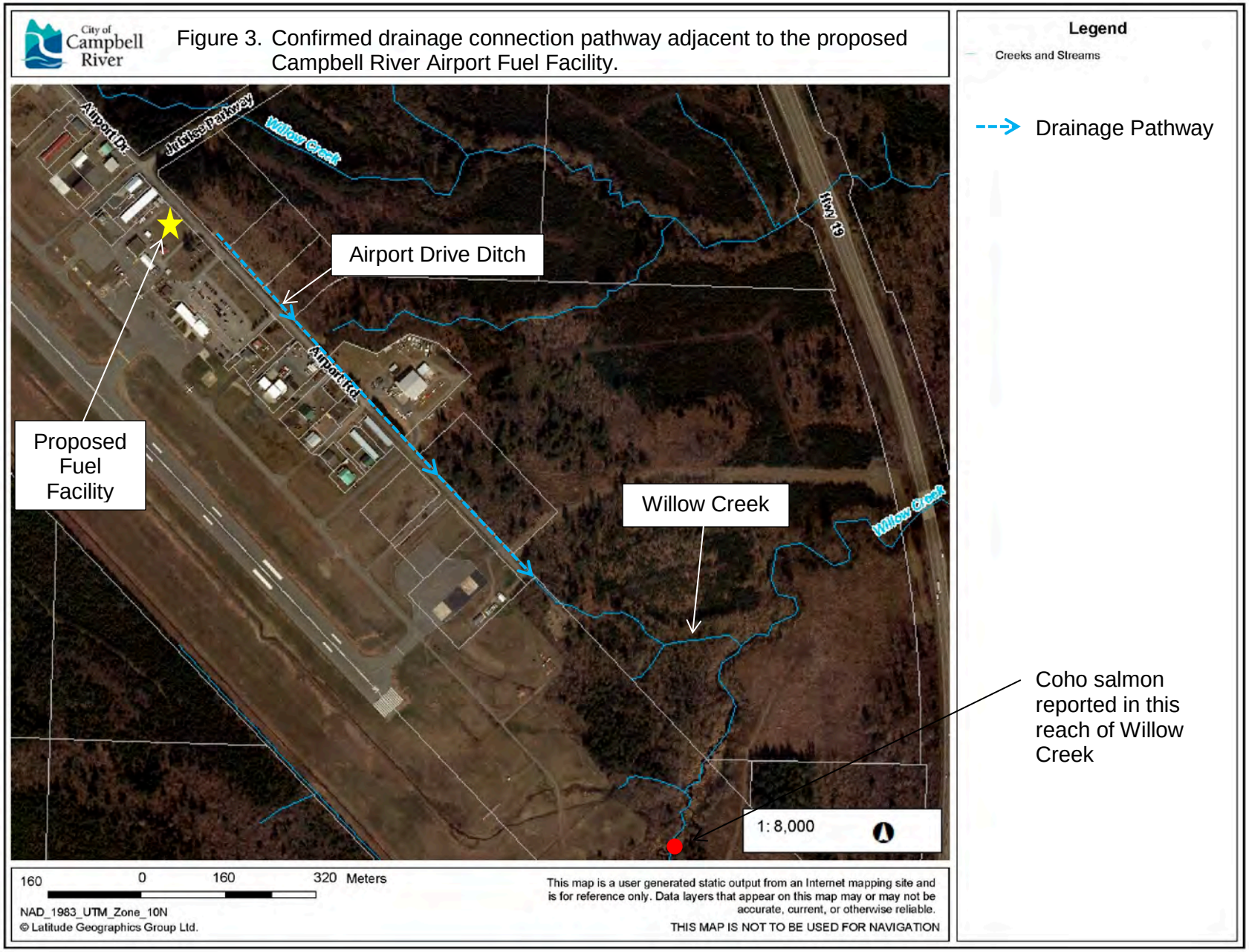
oil-water separator installed immediately to the south of the proposed facility footprint. A small pipe was observed with a surface outlet of water on the east side of Airport Drive adjacent to the proposed fuel facility (Photo 7; Figure 4). Water flow was present at this outlet location at the time of the assessment under very wet conditions but the site conditions indicate that flow is only present in response to heavy rain as there were no defined channel banks or scour to mineral substrates. All water collected within the existing stormwater drainage system in the vicinity of the proposed fuel facility is directed to the open ditch present on the east side of Airport Drive, and eventually into Willow Creek (Figure 3).

There were no mapped Sensitive Ecosystem Inventory (SEI) polygons shown within the proposed fuel facility footprint or in the immediate vicinity of the project area on Map 9 of the SOCP. No sensitive habitat, such as a wetland or unmapped drainage, was identified within 50 m of the proposed fuel facility during the site assessment.

No known Bald Eagle nests are mapped within or adjacent to the development property as shown on the City of Campbell River SOCP Interactive Webmap. A similar search for existing data on known Bald Eagle nests was done through the Wildlife Tree Stewardship Atlas, which is an online database of known wildlife trees in BC coordinated by the Wildlife Tree Stewardship program of BC Nature[3]. No nests were mapped in their database within 200 m of the proposed fuel facility. No large raptor nests were observed during the site assessment. There are no trees present within the project area with the potential to support a large raptor nest.

A search of the Conservation Data Centre internet mapping service returned no records of sensitive species occurrences within the project area or within 200 m of the site[4]. No rare or endangered species were observed during the site assessment although specific inventories were not completed.

[3] Wildlife Tree Stewardship Atlas - http://cmnmaps.ca/wits/
[4] Conservation Data Centre Mapping Service:
http://webmaps.gov.bc.ca/imfx/imf.jsp?session=556943517138&sessionName=Conservation Data Centre&theme-path=Ministry+of+Environment%2FConservation_Data_Centre.ssn
www.env.gov.bc.ca/cdc


City of Campbell River
Figure 3. Confirmed drainage connection pathway adjacent to the proposed Campbell River Airport Fuel Facility.
Legend
Creeks and Streams
Drainage Pathway
Airport Drive Ditch
Proposed Fuel Facility
Willow Creek
Coho salmon reported in this reach of Willow Creek
Airport Dr
Willow Creek
Hwy 19
1: 8,000
160 0 160 320 Meters
NAD_1983_UTM_Zone_10N
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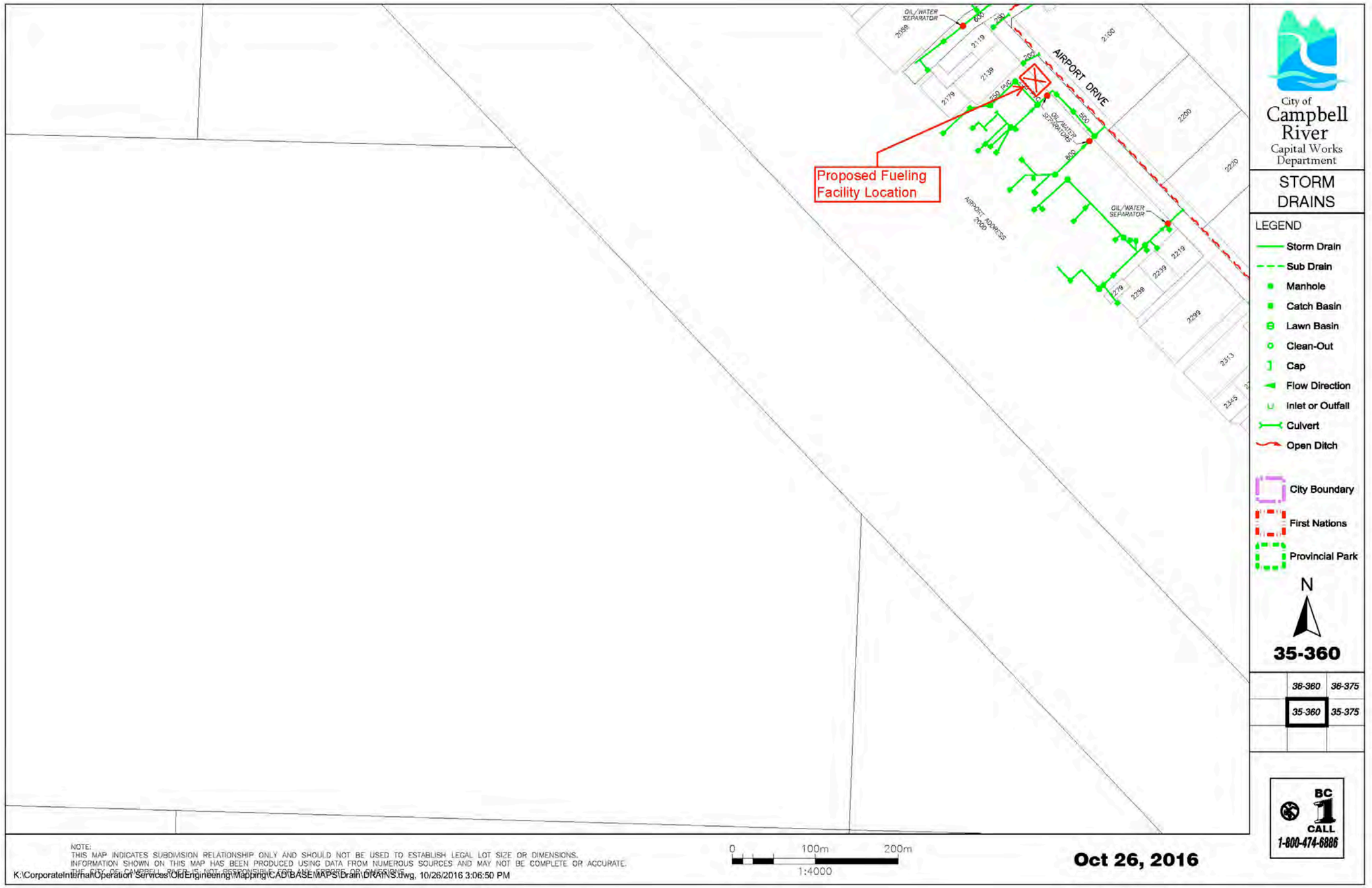

Figure 4. The existing storm drains present in the vicinity of the proposed Campbell River Airport Fuel Facility.

4.0 Regulatory Requirements

This section includes a brief discussion of the regulatory considerations for the construction and operation of a fuel storage and transfer facility.

In BC, the practices of handling, storing and transporting fuel are regulated under the federal *Transportation of Dangerous Goods Regulation* as well as the provincial and federal Fire Codes. The BC Fuel Guidelines (NorthWest Response, 2016) provide a summary of industry Standards, BC Fire Code and federal Transportation of Dangerous Goods (TDG) Regulations that pertain to petroleum hydrocarbon dispensing, storage and transportation in remote areas and industrial operations in BC. The environmental aspects of these guidelines are based on numerous codes and best management practices from the Environmental Code of Practice (Part 3) for Design and Installation of Aboveground Storage Tank Systems (2013). While this document was developed for use in remote areas, the legal requirements and guidelines can be applied to the City of Campbell River Airport fuel facility.

The environmental considerations relating to spill prevention for fuel facilities (permanent above ground storage tanks and skid-type tanks greater than 3000 litres) summarized in the BC Fuel Guidelines (2016) are presented below.

Legal Requirements:

- All tanks must have secondary 110% containment.
- Tanks must be in good condition, not damaged, rusting or leaking.
- Tanks must be level and appropriately secured to prevent shifting, swaying, damage or escape.
- Dispensing pumps must be designed for the products being handled.
- Take precautions to prevent spills.
- Report and respond to all fuel spills.

Industry Standards:

- Follow the BC Fire Code as a guide for fire and environmental safety.
- All tanks must be designed and constructed to a design standard specification and bear a visible and legible Spec Plate.
- Conduct and document regular (daily) inspections.
- In addition to secondary containment, all dispensing facilities must have Spill Control for up to 1000L.
- Ensure secondary containment does not fill with precipitation (if open containment is in place). Any accumulated must not be contaminated from the fuel storage either by leaks, drips or spills.
- Close and lock valves when the facility will be unattended for extended periods of time (i.e. overnight).
- AST shall be equipped with overfill protection.
- Manual or auto shut-off nozzles must be used when dispensing fuel.

- Store nozzle and hose in a safe manner to prevent damage and leaks.
- Hoses and nozzles must be maintained and not leak.
- Operators must stay with the nozzle at all times while dispensing fuel
- Maintain a spill kit of suitable size
- Operators should be trained in Spill Response, TDG and Fuel Management.
- Preventative spill control measures are required for large tanks.
- Maintain written Fuel Handling and Spill Response Procedures.
- Collision protection will be provided

Airports, even non-federal airports, are governed under the *Aeronautics Act* and are therefore subject to federal legislation. The proposed Campbell River Airport Fuel Facility would be subject to the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, SOR/2008-197 under the *Canadian Environmental Protection Act*. Section 30 of the regulation states that the owner or operator of a storage tank system must prepare an emergency plan and includes specific requirements to be included in the plan. Section 35 outlines the requirements for operation and maintenance of an oil-water separator used in conjunction with a storage tank system. The City of Campbell River, as the owner and operator of the fuel facility will be subject to this regulation and must fulfill these requirements.

The *Petroleum Storage and Distribution Facilities Storm Water Regulation* (2004) of the *Environmental Management Act* specifies requirements for effluent treatment and quality for fuel storage and distribution facilities. Under this regulation, facilities that have a storage capacity of less than 100 000 litres are exempt from Sections 3 to 7 of this regulation, which specify effluent quality requirements (Section 3), effluent treatment requirements (Sections 4 – 6) and facility registration requirements (Section 7). Therefore there are no requirements under this regulation that must be met for the operation of the proposed City of Campbell River Airport fuel facility.

As the project is being completed by the City of Campbell River it is exempt from the formal development permit approval process. This assessment satisfies the SOCP requirement that the project be completed in accordance with the assessments and recommendations of a qualified environmental professional (QEP).

The proposed location of the fuel facility is located greater than 30 m from the upstream end of the roadside ditch drainage present on the east side of Airport Road. Therefore a formal assessment under the provincial *Riparian Areas Regulation* is not required.

5.0 Environmental Impact Assessment

The purpose of this EIA was to provide an overview of the biological features and attributes located at the proposed Airport Fuel Facility and to identify any associated ESAs that could be affected through the construction and operation of this proposed facility. The review included an assessment of sensitive ecosystems, rare species and critical habitat features. Construction activities planned for the installation of the fuel tank will result in a temporary, short term disruption of the site including soil disruption but no native vegetation removal. Operation of the facility will involve storage and transfer of jet fuel. These two aspects of the project are evaluated relative to the identified ESAs in the following paragraphs and section.

There were no ESAs identified through the desktop review or site assessment other than the adjacent stormwater drainage system and the roadside ditch drainage. The proposed fuel facility is planned within the headwaters of the Willow Creek watershed. The facility will be located 32 m from a surface drainage ditch on the east side of Airport Road that connects to a branch of Willow Creek located 880 m downstream. Three storm drains in the vicinity of the proposed fuel facility location all have connection through the local stormwater system to the Airport Road ditch.

Installation of the tank will involve creating the gravel area and concrete pad. Protection measures will be required to ensure that there is no transport of sediment laden water towards the storm drains or identified ditch during or after construction. The most effective to eliminate this risk is to schedule work to occur during dry weather conditions. If rain is encountered interceptor ditches or sediment fencing may be required to divert surface drainage away from the watercourse and storm drains. In addition, care must be taken when pouring the concrete pad to ensure that any water that has been in contact with uncured concrete, including wash water from trucks or hand tools, is not directed into the storm drains or the ditch. An Environmental Protection Plan should be developed for the installation of the fuel tank to ensure that there are measures in place to protect water quality within the storm drain system and ditch during construction activities. No impacts to the fish and fish habitat present in Willow Creek are anticipated due to the proposed construction activities for the Campbell River Airport fuel facility as the facility is located greater than 30 m from the ditch as mitigation measures can be put in place to protect water quality (i.e. erosion and sediment control measures).

Table 1 provides a summary of the environmental impact assessment on specific parameters identified in the SOCP. Measures are presented to ensure that there are no impacts or potential

for cumulative impacts on water quality within Willow Creek as a result of construction activities and general operation of the Airport Fuel Facility. The risks associated with the storage and transfer of hydrocarbons at the Airport Fuel Facility are presented and evaluated in Section 5.1.

Table 1. The results of the Environmental Impact Assessment conducted at the proposed fuel facility at the Campbell River Airport on October 25, 2016.

Impact Parameters	Potential Impacts	Proposed Mitigation to Avoid or Reduce Potential Impacts
ESAs - General	• No rare or endangered species or ecosystems were identified within the proposed fuel facility footprint or within the adjacent habitat. • Short term impacts to wildlife usage of the area are expected due to the noise associated with construction activities. • Impacted habitat does not include any critical wildlife features.	• No rare or endangered species will be impacted due to proposed construction activities. • The fuel facility is located within an area of existing airport development. • No vegetation or forest clearing is required therefore no impacts to wildlife habitat. • No disruption or alteration of critical wildlife habitat, such as Bald Eagle or Great Blue Heron nest trees will occur.
ESAs – Aquatic **Construction**	• Short term impacts to the site hydrology are expected during construction. • Potential for transport of sediment laden water or other deleterious substances from the construction site to the existing storm drain system and ditch connected to Willow Creek.	• The proposed facility is located greater than 30 m from a surface drainage (ditch) and 880 m from Willow Creek. • An Environmental Protection Plan must be prepared for the construction and installation of the fuel tank to outline measures to protect the adjacent aquatic ESAs. • Properly implemented measures can prevent the risk of sediment transport and introduction of deleterious substances to freshwater fish habitat. • All disturbed soils must be levelled and stabilized with vegetation or other methods upon the completion of construction activities.
ESAs – Aquatic **Operation**	• No long term impacts to the site hydrology are anticipated as planned facility require significant modification to the existing site profile and will result in only a small increase	• See Table 2 for proposed mitigation measures to avoid potential impacts to water quality downstream due to the operation of the facility.

Impact Parameters	Potential Impacts	Proposed Mitigation to Avoid or Reduce Potential Impacts
	in the permeable surfacing at the site with only minor changes to drainage patterns. • Reduction in water quality in downstream habitat due to fuel leak or spill to ground with potential transfer to storm drain and / or ditch. See Table 2 for additional discussion.	
Air Pollution	• Short term impacts to air quality due to the presence of machinery may be experienced but are expected to be minimal. • No long term impacts to air quality are expected.	• Machines used during construction and operation of the fuel facility should be turned off when not in use and not left idling for extended periods of time.
Land Pollution	• Short term disruption to soils for the construction of the fuel facility is expected. • No long term impacts to soils are expected.	• All exposed soil resulting from construction will be levelled and stabilized with grass seed. • Transfer area management protocols will be established to prevent spills of fuel to ground.
Urban Forest	• No trees will be removed for the facility construction or operation.	• No vegetation or forest clearing is required therefore there will be no impacts to urban forest habitat.
SEI	• No SEI polygons are present within the footprint of the fuel facility.	• No impacts to SEI polygons are expected as a result of facility construction or operation.

5.1 Management of hydrocarbons

Operation of the Airport Fuel Facility carries risk factors due to the presence of and transfer of jet fuel. The location of the proposed facility within the headwater collection area of the Willow Creek watershed requires careful evaluation of the risks to ensure that mitigation measures are in place to protect the water quality and fish habitat present downstream from the facility within Willow Creek. The greatest risk of impacts to ground or water is associated with a fuel spill or leak. The potential for these types of fuel releases and the pathway of effects associated with these risks are evaluated in the following paragraphs and summarized in Table 2.

Low volume leaks and spills are possible during the day to day operation of the facility at the transfer point between the tank and fuel trucks. The frequency and volume of these leaks can be managed by proper fueling practices, use of containment measures and facility design. Containment measures can be applied to either capture small leaks at the nozzle (spill pads in hand) or prevent them from hitting the ground (containment trays). These controls rely on human effort and leave the potential for error and / or lack of diligence. Due to the location of the facility within the headwaters of Willow Creek and the daily operation of the facility with the potential for cumulative low level releases during fuel transfer, a direct drain connection from the tank pad to the existing oil-water separator is recommended. The oil-water separator will require maintenance as outlined in Section 35 of the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*.

Large scale fuel releases due to tank failure or mass release via the tank hose and nozzle (either during transfer or when unattended) are also controlled through tank design, hose and nozzle design, and use of containment. These types of spills are less likely to occur when industry standard designs and practices are implemented, but have an increased level of potential impact to the surface drainages in the area if they were to occur.

The tank and associated transfer hoses have design mechanisms in place to prevent free flow and leaks, which will be effective in preventing small and large scale releases of fuel. Product transfer area management protocols will also be established including operational procedures to ensure that there is no accidental transfer of jet fuel into the stormwater system and ditch. The ditch has an existing mechanism in place to block surface connection to Willow Creek in the event of a larger volume spill to ground that could reach the drainage. The culvert

block is located 475 m downstream of the proposed fuel facility and 405 m upstream of the connection to Willow Creek. These facility design details are in line with the recommended industry standards for large fuel tanks and facilities. Potential impacts to surface water that could impact downstream fish and fish habitat during the operation of the facility can be avoided or mitigated through facility, tank and nozzle design, use of secondary containment, operator training, spill response preparedness (spill control materials and operator training) and routine inspections. An Emergency Plan will be required and must include the details as outlined in Section 30 of the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*. Management of large volume spills should not rely on the presence of the oil-water separator as this structure is not designed to handle large volumes of material. Therefore facility design and operator behaviours are the primary mitigative measures to protect against impacts related to a large scale release of fuel.

Table 2. Pathway of effects evaluation of potential hydrocarbon release from the proposed Airport Fuel Facility on aquatic habitat downstream of the facility (Willow Creek watershed).

Impact Pathway	Potential Hydrocarbon Release Mechanism	Frequency / Intensity of Potential Impact	Impacted Resource	Risk Assessment	Mitigation Measures
• Transfer to storm drain and / or ditch with confirmed connection to Willow Creek • Storm drain catch basins located within 20 m of the proposed facility. • Surface ditch drainage located 32 m from the proposed facility. • Both the storm drain system and the ditch drainage are connected to Willow Creek.	Small scale fuel leaks / drips or spills to ground during fuel transfer between tank and fuel trucks.	• Fuel transfer from tank to airport fuel trucks estimated to occur a few (slow season) to multiple times (busy season) per day. • Low volumes of hydrocarbons expected from drips.	Aquatic Habitat – fish habitat (Willow Creek watershed)	• Potential for ongoing low level cumulative effects due to persistent low level releases.	• Transfer area management protocols, including use of portable containment and other spill controls as needed, will be established to prevent drips or small spills of fuel to ground during fuel transfer. • Install a drain in the concrete pad with a direct connection to the existing oil-water separator located south of the proposed facility. This will provide ongoing treatment of water leaving the facility and reduce the potential for ongoing low level release of hydrocarbons to the downstream habitat. • Ensure that regular inspection and maintenance for the oil-water separator is included in the facility operations protocols.
	Large scale fuel leak or spill to ground due to tank failure, nozzle/hose malfunction or during transfer between fuel truck and tank.	• Large volume transfer of fuel from supply truck to tank estimated to occur weekly or less frequently. • Potential for a large volume release of hydrocarbons.	Aquatic Habitat – fish habitat (Willow Creek watershed)	• Potential for rare event with moderate to significant level of impact to aquatic habitat downstream in Willow Creek.	• Transfer area management protocols, including use of portable containment and other spill controls as needed, will be established to prevent and contain small or large scale spills of fuel to ground or water during fuel transfer. • Grade the site around the concrete pad to prevent spills from draining towards and entering the storm drain when the facility is unattended. • A culvert block is present within the Airport Drive ditch that can be closed in the event of a spill to prevent movement of fuel to Willow Creek via the ditch drainage. • Storm drain blocks must be present at the fuel facility for immediate installation in the event of a spill with potential to enter the drain.

6.0 Conclusions and Recommendations

Proposed construction activities and the operation of the Campbell River Airport Fuel Facility will not impact ESAs or fish and fish habitat within Willow Creek as long as sediment and erosion control measures are implemented during construction activities and protocols are in place for fuel transfer. Short term impacts are expected at the site due to disruption of soils and increased traffic in the area during construction activities but these impacts are expected to be minor. No long term or permanent impacts to the environment relating to the operation of the fuel facility at the Campbell River Airport have been identified as long as the operation adheres to federal and provincial regulations and follows industry best practices, as described in this document.

The following actions are recommended to ensure that there are no environmental impacts associated with the construction and operation of the Campbell River Airport Fuel Facility:

- An Environmental Protection Plan must be prepared for the construction and installation of the fuel facility to ensure that there are no impacts to the environment during the construction process.
- Grade the site surrounding the concrete pad that the tank is installed on to prevent spills from entering the adjacent storm drains (reduces for potential for large volume spills to enter the stormwater system).
- Install a drain within the concrete pad and connect to the existing oil-water separator located to the south of the proposed facility to reduce the potential for ongoing low level releases of hydrocarbons to the downstream aquatic habitat.
- Operation and maintenance of the oil-water separator must be completed in accordance with Section 35 of the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*.
- Fuel transfer area management protocol to be established to ensure that the risk of fuel leaks or spills are mitigated during operation of the facility, particularly to avoid a large scale fuel release.
- Emergency procedures must be clearly established for staff in the event of an accidental spill. Staff must be aware of the location of the storm drains in the vicinity of the facility and how to install storm drain blocks if necessary. Staff must be familiar with location and use of all on-site spill control materials.

7.0 References

BC Reg. 321/2004. *Environmental Management Act* Petroleum Storage and Distribution Facilities Storm Water Regulation.

Ministry of Environment. 2013. Environmental Code of Practice: Part 3 Design and Installation of Aboveground Storage Tank Systems.

Ministry of Water, Land and Air Protection. 2002. A Field Guide to Fuel Handling, Transportation & Storage. 3rd Edition, February 2002.

NorthWest Response Ltd. 2016. BC Fuel Guidelines 7th Edition. Revised March 2016.

SOR/2008-197. Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

Appendix 1 – Site Photographs

Photo 1
A view looking west at the current conditions of the proposed location of the Campbell River Airport Fuel Facility on Airport Drive.

Photo 2
A view looking east at the existing conditions of the site where the Campbell River Airport Fuel Facility is proposed.

Photo 3
A view looking south along the west side of Airport Drive adjacent to the proposed location of the fuel facility. There was no ditch present but surface water was present and flowing into the storm drain circled in red.

Photo 4
A view looking south along the east side of Airport Drive opposite of the proposed location of the fuel facility. There was standing water present but no defined drainage.

Photo 5
A view looking south along the east side of Airport Drive at the upstream end of the roadside drainage identified during the site assessment.

Photo 6
An upstream view of the manual culvert block present in the roadside ditch adjacent to Sealnd Aviation at 2300 Aiprort Drive.

Photo 7

A view looking west showing the outlet location on the east side of Airport Drive of the storm drain present on the north side of the gravel driveway located next to the proposed fuel facility. Photo 3 shows the inlet location and Figure 4 shows the underground storm drain system.